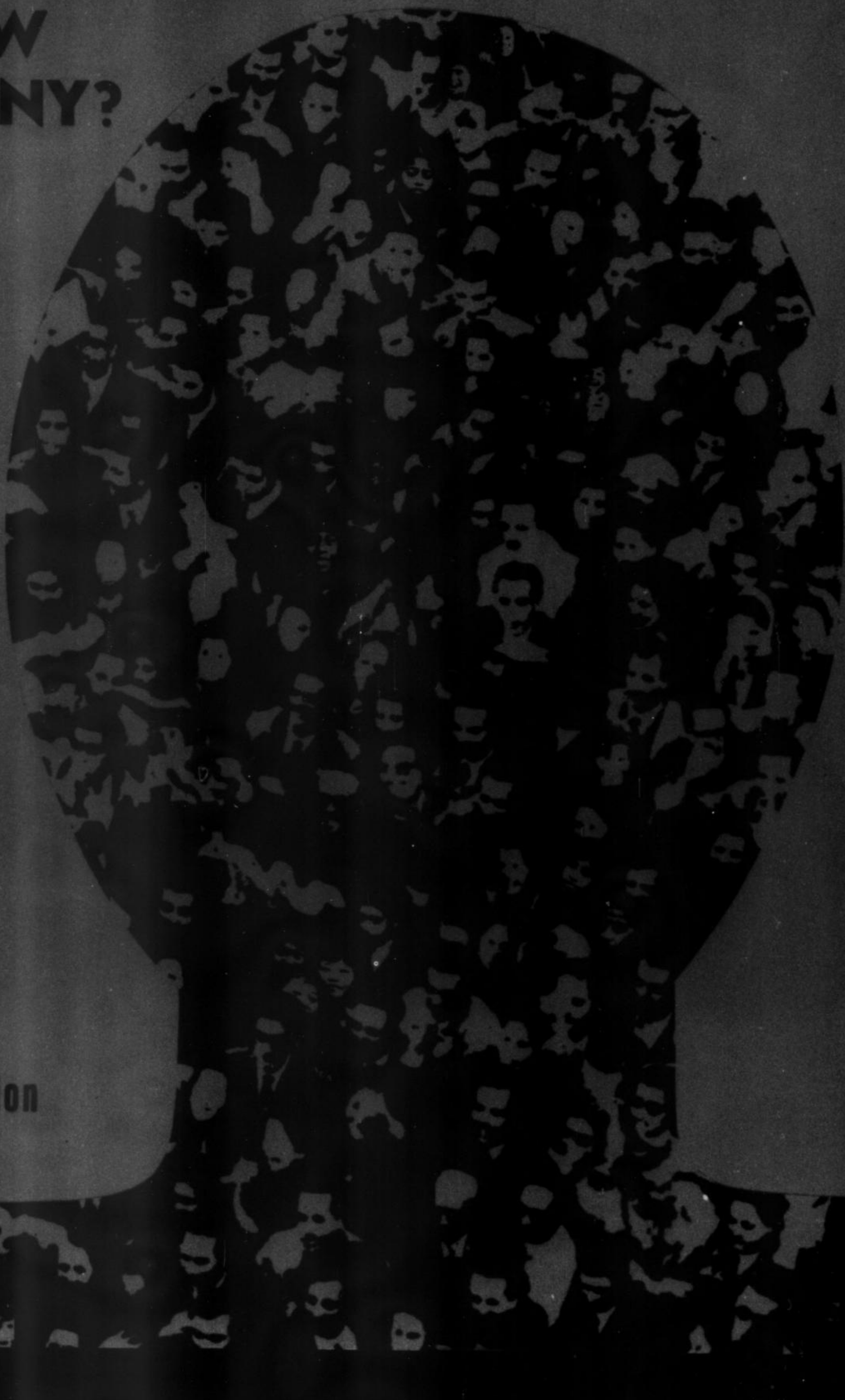
The UNESCO Courier

A window open on the world

May 1974 (27th year) - 2.40 French francs

AND TOMORROW HOW MANY?



World Population Year

TREASURES
OF
WORLD ART

88

MALI

Dogon ancestor figures

The Dogon, an African people living in the mountains to the south of Timbuktu, in Mali, have long been renowned as accomplished sculptors in metal and wood. Dogon wooden votive figures have survived intact for as much as two centuries—longer than many African sculptures in wood. These slenderly-shaped carvings of ancestor figures or mythological heroes are, like most Dogon sculpture, inspired by the ancestor cult.

Photo : Luc Joubert, Paris

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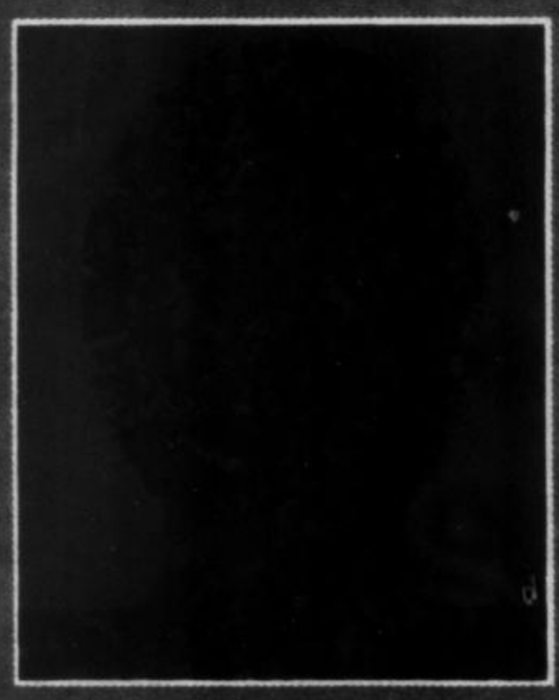

AND TOMORROW HOW MANY?

On the occasion of World Population Year 1974, the "Unesco Courier" will devote at least two issues to problems of the Demographic Explosion. Cover for this issue was specially designed for the "Unesco Courier" by Polish artist Roman Cieslewicz.

1 + 1 = 3

Every day over 200,000 more mouths to feed

THE clock is ticking. Every second there are two additional mouths to feed. Every day there are 200,000 more births than deaths, six million more every month. At last count more than 74 million individuals were added to the world population in one year. And the increase is greater annually.

The effects of today's population trends will be felt decades and centuries from now. Measures aimed at modifying these trends—or the failure to find and implement such measures—will be felt by generations to come. It is those future generations who will either reap the benefits or pay the price for our action or inaction today.

Because of the great time lag between action and effect, it is important to begin today to find out—on a global scale—where we are headed. This, in essence, is the objective of the World Population Year, 1974, as designated by the United Nations, and is the substance of the agenda for the World Population Conference to be held in Bucharest (Romania) in August, 1974. Then, representatives from United Nations member countries will convene to discuss, analyse and make recommendations upon what has become known, generally, as the "population problem".

There are differing viewpoints as to the urgency of the world population problem; some believe global catastrophe already threatens the human race due to the vast population increase multiplied by effects and demands of industry and technology. Others are optimistic, seeing the solution in terms of technological progress that will meet the needs of countless more billions. The need for radical structural reforms of an economic, social and political nature on a world and national scale is often stressed, and some oppose what they consider to be an overemphasis on family planning and population control.

Whatever the differences, there is wide agreement on certain assumptions that inevitably relate to population problems: that nations are more interdependent than ever before; that the rich have an obligation to help the poor; that no matter how many people the earth might eventually support, too many too soon can have, and are having, harmful effects; that society should seek to improve the living standards and the quality of life of all people; that overcrowding, pollution, poverty, ignorance, disease, waste of resources and social alienation must be eliminated; that the earth itself—fields and forests, lakes and seas—is now measurably affected by man's activities and must be protected against man's abuses in order to save mankind; that children should be born into a family and a world that wants them; that nations can and should help one another and combine their knowledge for the benefit of all.

The population situation is different in each country. The United Nations General Assembly, the Economic and Social Council and its Population Commission have frequently emphasized that it is the sovereign right of each government to establish its own policy relating to population. Yet they have also recognized a need for nations to come together and find common aims. The World Population Year, 1974, and the World Population Conference are expressions of this position.

"The evidence is all around us," U.N. Secretary-General Kurt Waldheim observed in announcing the World Population Year and Conference. "Each year 127 million children are born, each year 95 million come of school age and each year 19 million reach age 65. These totals are likely to rise steeply in the years ahead as more young adults swell the ranks of potential parents, and improved medical care advances life expectancy... Each nation, each community, each family must assess in detail how these trends affect their hopes for higher living standards, a better education, and greater health and happiness."

World Population Year, 1974 has been dedicated by the United Nations to the task of evolving a world consensus on population matters and a better understanding of how to deal with the complex and varied population problems arising in different forms throughout the world.

The United Nations Population Commission, a subsidiary body of the Economic and Social Council, is supervising arrangements for the Year and Conference. The Commission has outlined these main objectives of the Year:

- To improve command of the facts concerning population trends and prospects and the relevant associated factors.

- To sharpen awareness and heighten appreciation of population problems and their implications among individual governments, non-governmental organizations, scientific institutions and the media.

- To provide effective education on population dynamics, family life and reproductive functions through formal and other educational systems.

- To stimulate discussion and thinking on alternative policies, promotion of demographic consideration in development planning, and development of policies and programmes in the population field which individual governments might wish to undertake.

- To expand international co-operation in population fields and supply increased and suitable technical assistance to countries desiring it, in accordance with their needs.

Development of programmes in those areas is guided by the following principles:

— Respect for the sovereign right of each nation to decide, on the basis of informed awareness, what its own population policy should be.

— Respect for the personal right of a couple to decide the size of the family.

— Recognition of the social and cultural value differences among nations and communities, in formulating and implementing population programmes, most of which are, therefore, country-based.

— The world population situation is regarded as a complex matter which varies in its nature and substance from place to place rather than as one responsive to a simplistic overall solution. ■

Photo René Maltête © Rapho, Paris

Population growth or economic growth?

'It's one or the other' say some
'A phony problem' say others

IT took at least a million years for human numbers to reach the billion mark. Before the emergence of settled agriculture perhaps 8,000 years ago, the world's entire population may have been from 5 to 10 million. With more elaborate social organization, much larger populations could be sustained, and about 2,000 years ago the world's population had grown to between 200 and 400 million inhabitants.

The billion mark was reached around 1800, and the second billion arrived in about 130 years. But the third billion took only 30 years, and the fourth will have arrived within only 15 years.

World population growth is the result of natural increase—the excess of births over deaths. The fall in the death rate occurred first in the developed regions, but over the last thirty years has been operating spectacularly in Africa, Asia and Latin America. Small families have become the rule in the economically advanced countries but birth rates in the poorer regions have remained high.

Thus a revolutionary change in the reproductive balance of the human species has taken place in modern times. Never in history had it been possible to reduce human mortality to such an extent as witnessed in the past hundred years or so. The present decade is confronted with the most rapid growth of population the world has ever seen.

Terrible though the losses of human lives have been in mass killing of wartime and widespread deaths from earthquakes, floods, famines and epidemics, these have not substantially impeded the growth of population in the modern period. It has been calculated that all the national and regional disasters on record since 1850 may have delayed the growth by no more than about 10 years. Had there been no war, famine or epidemic since 1850, the world's population might have totalled more than 3.5 billion in 1960 instead of in 1970.

Unless disasters occur on a scale never before known, enormous future increases in the numbers of mankind are a virtual certainty. But population cannot grow forever. If population growth is not to be cut down by disasters, it will have to be reduced by decreases in birth rates—decreases comparable to those which have already occurred in the death rates.

Thus it has become evident that there is, as a U.N. panel on population has stated, "an increasing need for a global or world-wide look at the problem of population growth and the international consequences of national policies. The world appears to be approaching a stage where not only individual decisions will have to be evaluated in terms of national interest but also national decisions will have to be evaluated in terms of the interest of the world community."

The U.N. panel has pointed out that zero population growth (ZPG) is inevitable as a long-run proposition. Short of natural disaster, man may bring it about deliberately and by acceptable means (mainly by controlling births) or through undesirable means (such as increased mortality). However, the experts emphasized that while it is not unrealistic to expect ZPG to be achieved in many developed countries in the foreseeable future, such an expectation would be quite unrealistic in regard to the presently developing countries.

Population policies cannot be considered separately from broader questions of development, U.N. studies have revealed. A high level of social and economic development is generally accompanied by a reduction in fertility. Without reduction in the rate of population growth, however, economic development may be severely jeopardized. At the same time without economic development, and without radical transformation in the structures of society, reduction in the rate of population growth will be hard to achieve. Moreover, reducing the growth rate will not be enough to solve the problem of poverty.

All government policies aimed at economic growth and social development may affect fertility in some way, the U.N. studies indicate. Certain policies and programmes aimed at improvement in welfare may also lower the benefits and increase the costs of having children and therefore constitute policies for limiting fertility; yet, other policies and programmes may tend to encourage fertility.

The phenomenal growth of the human family in the coming decades may call for new ways of thinking about man's needs and values. The vastly increased sizes of population in every form of settlement—in the largest cities as well as in towns, villages and the open countryside—may require forms and methods of economic and social organization unlike those successfully used in the past.

Cultural, political and international circumstances also will cause future

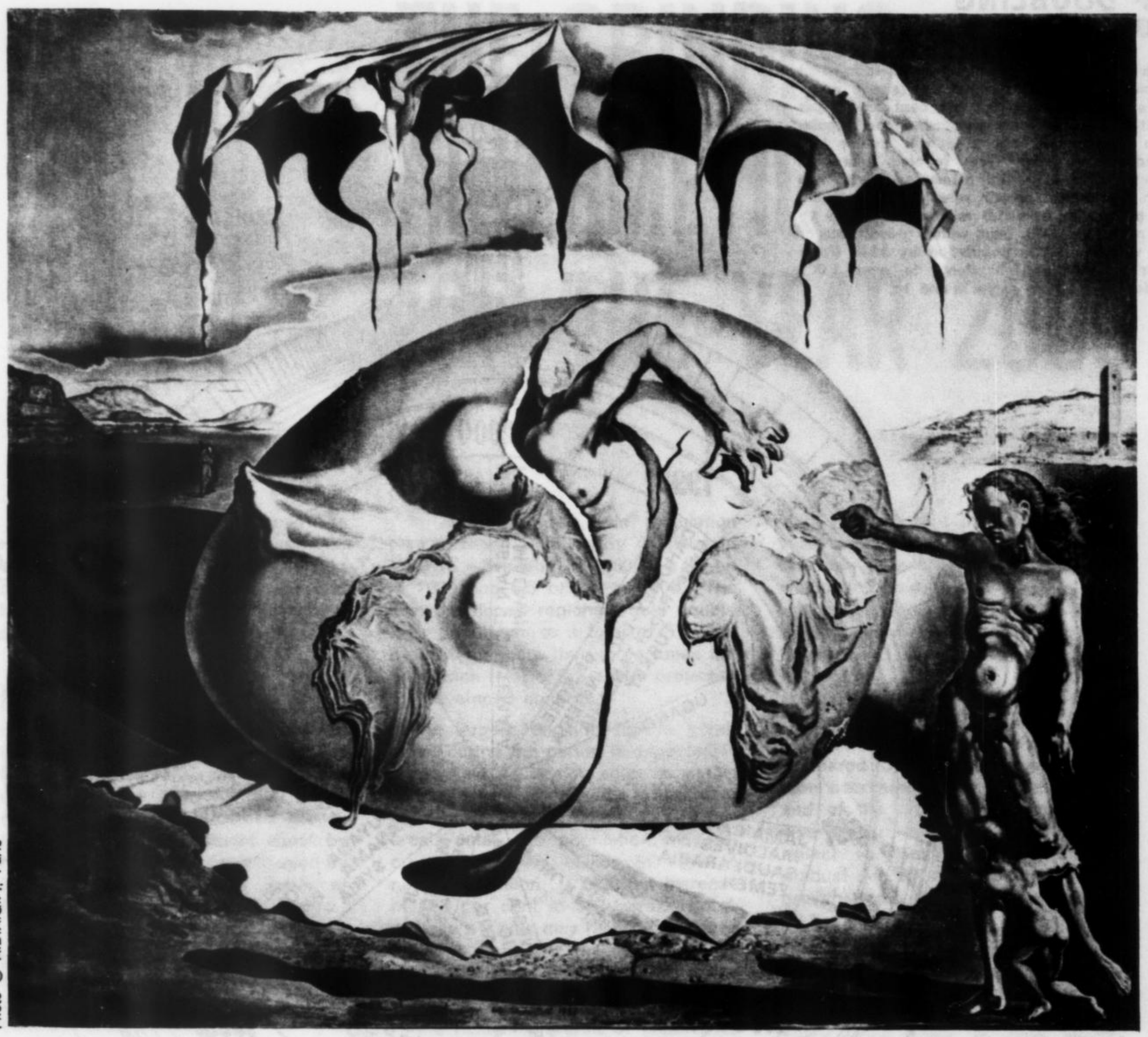

Photo © A.D.A.G.P., Paris

" Geopoliticus Child Watching the Birth of a New Man ", oil painting by the Spanish artist Salvador Dali (1943), from a private collection in Cleveland, U.S.A.

development to differ in many respects from the past, as will the persistent shortage and geographical maldistribution of sources of investment capital.

Some goals of humanity may have to be reformulated. Revolutions in thought, feeling and attitude of one kind or another may become necessary—and, in fact, such radical changes appear bound to occur. World Population Year offers an appropriate occasion for all to reflect on the basic goals and directions of mankind.

Several developing countries, whose area and resources are extensive in relation to current population, have expressed opposition to any world campaign to limit population.

Brazil, for example, vigorously pressing this point of view, told a recent U.N. population meeting that it could not understand why developed countries with high population densities advised less densely populated countries to be demographically wiser and to reduce their population growth. If the developed countries were so concerned with population growth, Brazil's representative asked, would it not be preferable for them to transfer plants and new investments to developing countries, instead of accepting additions to their labour force from abroad?

Brazil and other countries argue that population growth has been overemphasized. Development has always spread outward from densely-populated to thinly-populated areas, they maintain, and history has shown that rapid population growth has also been a sign of development. The solution to population problems, they say, will be found only in economic development, and not through action forcing certain sectors to adopt contraceptive measures. Brazil advised the international community to concentrate on providing factual information upon which governments could formulate programmes and policies.

Chile's delegate to the U.N. General Assembly said, in November 1970, that the population growth problem is "artificially emphasized by developed countries as an excuse for them to escape their obligations to the international community"; the real need was "to attack the causes of underdevelopment through an increase in trade and financial aid, greater access to modern technology, and co-operation between developed and developing countries in all areas of technical assistance."

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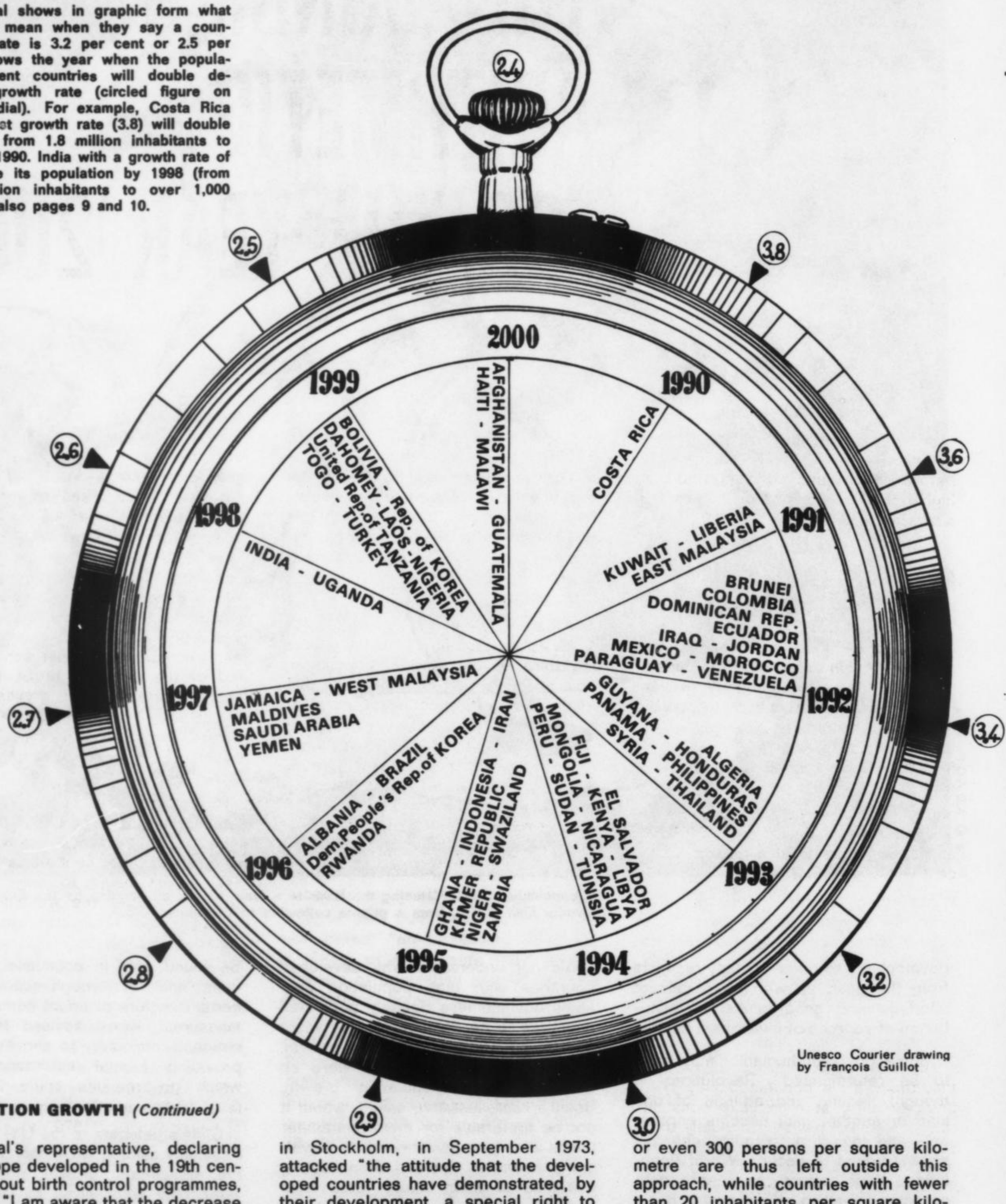
TIME-CLOCK OF DOUBLING POPULATIONS

This watch dial shows in graphic form what demographers mean when they say a country's growth rate is 3.2 per cent or 2.5 per cent. Dial shows the year when the population of different countries will double depending on growth rate (circled figure on outer rim of dial). For example, Costa Rica with the highest growth rate (3.8) will double its population from 1.8 million inhabitants to 3.6 million by 1990. India with a growth rate of 2.6 will double its population by 1998 (from over 550 million inhabitants to over 1,000 million). See also pages 9 and 10.



Unesco Courier drawing by François Guillot

POPULATION GROWTH *(Continued)*

Senegal's representative, declaring that Europe developed in the 19th century without birth control programmes, added: "I am aware that the decrease in mortality rates today adds a new dimension to the population problem, but technology has increased the industrial output. In Senegal it would be disastrous to limit population since the population density there is only seven persons per square kilometre."

Miguel A. Ozorio de Almeida, head of Brazil's delegation to the U.N. Conference on the Human Environment, in Stockholm, in September 1973, attacked "the attitude that the developed countries have demonstrated, by their development, a special right to salvation and perpetuation, thus passing on to the more numerous underdeveloped peoples the responsibility for creating the necessary space on earth... Emphasis upon population growth, as such, unlinked to the relationship of the population to the national resource base—including geographical space—is inadequate and unacceptable.

"Countries with more than 100, 200, or even 300 persons per square kilometre are thus left outside this approach, while countries with fewer than 20 inhabitants per square kilometre are being condemned for demographic policies that would bring about increased economic efficiency and constitute a necessary condition for their national integration and fulfilment as a human community." If resources were to be shared by all peoples, "then economic power, industrial productivity and financial control should also be shared", he maintained. ■

THE GRINDING ARITHMETIC FOR THE YEAR 2000

THE decade of the 1970s may be confronted with a higher rate of growth than ever experienced before in the history of man, and one higher than is likely to be confronted again in the future.

World population trends for many years to come will be decisively influenced by trends in the developing regions. These are the conclusions that emerge from the latest United Nations projections to the end of the century, which illustrate the implications of the unprecedented growth in world population brought about by reductions in mortality accompanied by little change in the high levels of fertility in developing regions.

It is important to remember that a population increasing at an annual rate of 2 per cent will *double* in 35 years, and one increasing at a rate of 3 per cent will double in 23 years.

According to the "medium" projections—representing the trend considered most plausible—the world's growth rate will be about 2 to 2.1 per cent per year for the decade. That is from 1 to 1.1 per cent in the developed regions but 2.4 to 2.5 per cent in the less developed regions.

These "medium" projections show that the world's population may continue to grow at a virtually constant rate of about 2 per cent annually until 1985. A downward trend would then start, ending at a 1.7 per cent rate by the end of the century.

In absolute terms, the population may increase from nearly 4 billion in 1973 to 4.5 billion in 1980, 5.4 billion in 1990 and 6.5 billion in 2000. The less developed regions would double their population to a total of 5 billion by 2000, or more than three times the population total of 1.5 billion projected for developed countries.

The largest addition to the population during the period is expected in South Asia, which now contains almost one third of the world's population. India is the largest contributor to this area's total. Its population may increase from 487 million in 1965 to nearly 1.1 billion by 2000 (an increase of 123 per cent in 35 years). South Asia as a whole may have an increase of 1.4 billion over the 1965 total by 2000, accounting for 43 per cent of the projected increase in world population.

The next major area of importance is East Asia where the pace of population growth is expected to be moderate, but the absolute increase will be very high. China's population is projected to increase from 700 million (1965) to 1.2 billion (2000). Sizeable increases in total population are also expected in Latin America—from 246 million to 652 million—and in Africa, from 303 million to 818 million.

The world's current 2 per cent annual rate of increase is not expected to continue. If it did, population would soar to a total of 28 billion only a century from now. If the growth rate were reduced to 1 per cent after the year 2000, and if it remained at that rate, the population in the year 2074 would be about 14 billion.

Among major areas of the world, rates of population growth are currently highest in Latin America and South Asia. Latin America is expected to maintain the very high rate of 2.8 to 2.9 per cent annually until about 1985—a result of its relatively low mortality compared to other developing areas—then decrease to 2.6 per cent by the end of the century. In South Asia, where current high growth rates reflect very high fertility levels, a gradual decrease is expected, so that growth would reach about 2 per cent by the year 2000.

In Africa, the decline in fertility is not expected to begin until later in the century. Its population growth rate may exceed 3 per cent annually in the 1980s, then begin to drop slightly. Africa may have the world's highest growth rate well into the 21st century, and may also be the only area where the age structure, already unfavourable for development, may change for the worse, with the percentage of children remaining much the same or even increasing within the next decades.

In the largest country, China, where birth control practices are reported to be in wide use, the rate of increase for the period 1965-1970 was estimated at 1.8 per cent. On the other hand, recent figures for some thirty developing countries in Africa, Latin America and Asia indicate a rate of increase of about 3 per cent.

These include: In **Africa**—Algeria, Kenya, Liberia, Libya, Morocco, Southern Rhodesia, Sudan, Tunisia. In **Latin America**—Costa Rica, Dominican Republic, El Salvador, Honduras, Mexico, Colombia, Ecuador, Paraguay, Peru, Surinam, Venezuela. In **Asia**—Brunei, Iraq, Jordan, Kuwait, East Ma-

CONTINUED NEXT PAGE

laysia, Mongolia, Pakistan, Philippines, Syria, Thailand.

Population is also increasing in density. In the 1950-1970 period, 63 inhabitants were added to each square kilometre in Middle South Asia and 56 in Japan. The Caribbean area added an average of 38 people per square kilometre, and in South East Asia, China and Western Europe density gains were about 24 to 26 persons per square kilometre. Gains in Southern Africa, the Soviet Union, North America and temperate South America were modest, each adding only 3 persons per square kilometre.

One of the major achievements of our civilization is "death control", the steady march towards victory over disease and famine.

Today the inhabitants of most developed countries can expect to live 70 years or more; the figure is around 76 in Scandinavia. The developing countries also have benefited from progress in extending the life span, but in many of these countries a person still cannot expect to live more than 50 years, especially in Africa where life expectation in many countries is under 40. (In Gabon and Guinea, life expectancy for men has been estimated at 25 and 26 years respectively.) In many Latin American countries, on the other hand, people can now expect to live as long as 60 years.

Until about 1850, the demographic differences between the developed and developing worlds were slight. In both there was an average of about 35 deaths and about 40 births per thousand inhabitants each year. But after 1850, the *death rate* in the now more developed regions decreased gradually to about 28 in 1850-1900, about 18 in 1900-1950, and 10 or less since 1950.

In the less developed regions, the death rate was still 32 per thousand from 1900-1950, but by the 1960s it had dropped sharply to a rate of 17. In these regions, the drop in mortality was delayed by nearly a century, and now is occurring with outstanding speed.

A further impressive decline in mortality levels is anticipated in the less developed regions. An overall gain of more than 15 years in life expectancy at birth is expected within the next 30 years, and the death rate may decline from about 16 to 7 or 8 per thousand towards the end of the century.

Because of the more youthful composition of their populations, the death rate in some of the less developed countries already has fallen as low as that in some developed countries with a high proportion of people at an advanced age. Some developing regions may attain by the end of the century the lowest death rate ever experienced by sizable human societies—as little as 5 per thousand.

Among the significant features of recent mortality trends has been a rise in death rates among middle-aged or older men in some highly industrialized countries. In these countries, where mortality had already reached low levels and infectious diseases had been brought under control, cardiovascular diseases have become the most important cause of death.

Infant mortality in some developing countries has dropped closer to the level in developed countries and the infant mortality rate is no longer considered as much of an indicator of social and economic development as it was in the past. There are still a number of countries where about one out of five live-born infants dies before its first birthday. But in the past three decades, the infant mortality rate has fallen from 106 to 27 per thousand in more developed regions, and from 230 to 140 per thousand in the less developed.

Over the past two centuries the pattern of an uneasy balance between births and deaths has been broken. There are about 125 million births each year in the world, and about 55 million deaths roughly in a ratio of 2 to 1. About four fifths of the births are in the developing countries.

Few indicators descriminate so sharply between the more developed and the less developed countries as do the measures of fertility. The countries with birth rates of about 30 and gross reproduction rates above 2.0 (a gross reproduction rate of 1.0 means an average of one daughter per woman) are found almost exclusively in the developing regions—in Africa, Asia and Middle and South America. Countries with rates below these levels are located, with few exceptions, in the economically more advanced regions.

Birth rates fell substantially in the 19th century in all the now more developed regions, but hardly at all in the less developed. The gap has widened enormously. Typical birth rates in developed countries are near 20 per thousand, while in developing countries they are twice as high.

In a number of high-fertility countries, including some which have adopted policies and programmes aimed at reducing the birth rate, there have been decreases in the birth rate during the 1960s. But the combined population of countries with an appreciable drop is small compared to those where there has been little or no change in the high birth rate.

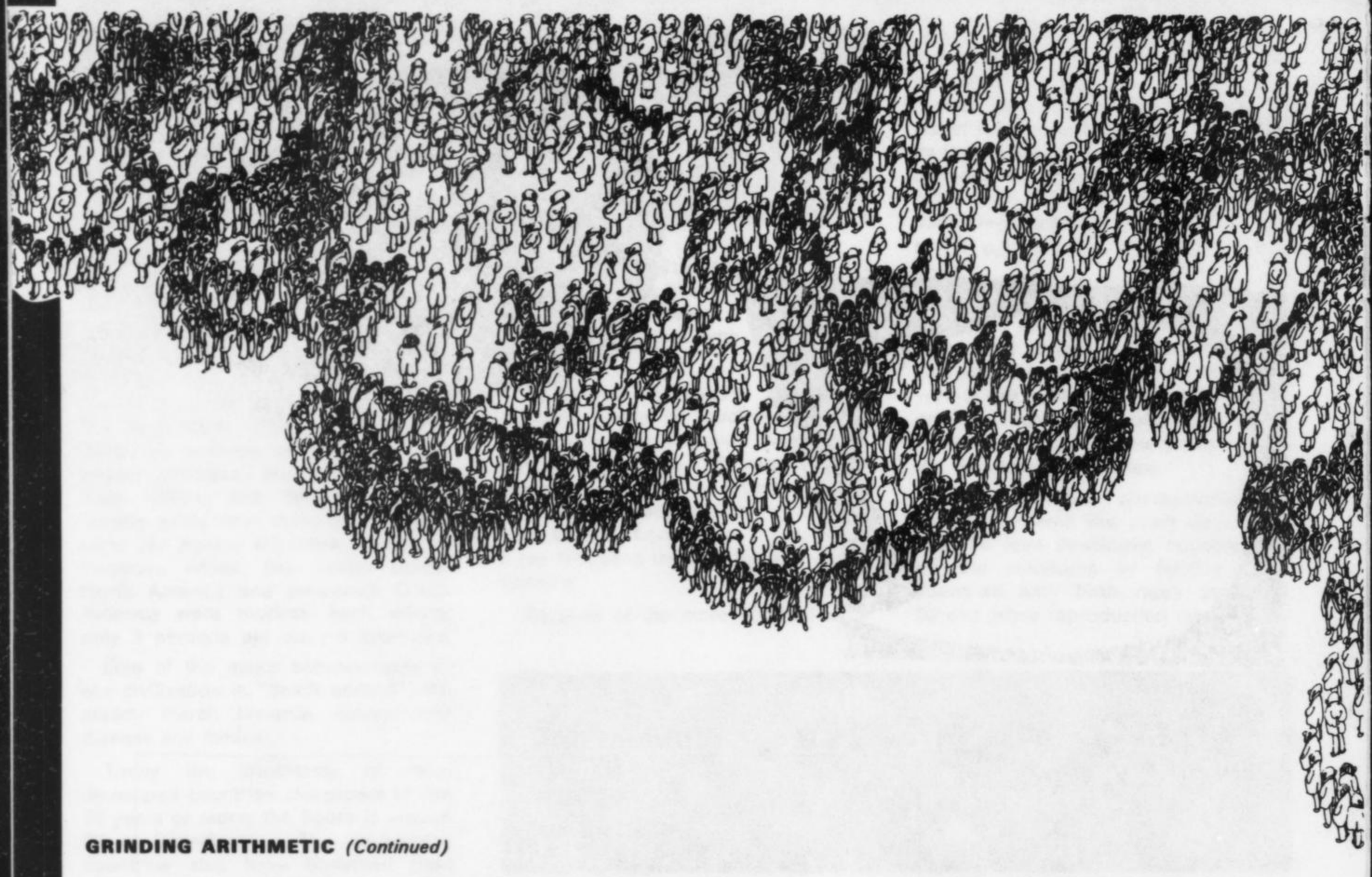
In Africa, a belt of very high fertility extends across West Africa from Guinea and Mali to Niger and Nigeria. The countries in this belt have gross reproduction rates of 3.3 or above. In Latin America, only slightly lower

CONTINUED PAGE 12

STANDING ROOM —BUT ONLY JUST

The three drawings on this page and overleaf, commentaries in humorous vein on the demographic squeeze, are by a young artist from the Federal Republic of Germany, Hans-Georg Rauch. A frequent contributor to leading European and American magazines, Rauch has published two volumes of drawings and has made several television films. Our illustrations are from a new album of Rauch's drawings entitled "Die Schweigende Mehrheit" (The Silent Majority) to be published shortly in the German Federal Republic by Rohwolt and in Paris by Hachette.

Drawings © Ed. Lahumière, Paris



GRINDING ARITHMETIC *(Continued)*

rates have been estimated for the Middle American mainland.

A zone of much lower fertility is centred in the Congo Basin in Africa (estimated gross reproduction rates 2.1 to 2.4). In the Caribbean area, fertility is only moderately high (gross reproduction rates around 2.5).

In Asia there is a Chinese cultural zone of rather moderate fertility, with gross reproduction rates not exceeding 2.8; this zone includes Hong Kong and Singapore and probably also China, for which knowledge of fertility levels is uncertain.

A group of countries in South-East Asia, including the Philippines, Cambodia, Thailand and the East Malaysian States of Sabah and Sarawak, have estimated gross reproduction rates of 3.2 and higher. Pakistan also appears to have very high fertility, but a zone of somewhat lower fertility, with estimated gross reproduction rates of 2.5 to 2.7, includes India, Nepal, Burma and Sri Lanka.

Because adequate statistics are not available, it is impossible to prove whether in Asia as a whole the birth rate has changed at all in recent years. China, which comprises over one fifth of the world's population, may be undergoing a slow decline in the birth rate. Various estimates of long-term fertility trends in India, the second largest country with around one seventh of the world's inhabitants, indicate either that the birth rate has shown only a moderate decline since earlier in the century, or else that it has remained practically unchanged. In view of improved health conditions and reduced widowhood as a consequence of lower mortality, the absence of a rise in fertility may be looked upon with some optimism.

Birth rates have probably diminished at least slightly in Latin America as a whole. In Africa as a whole, it seems likely that the average birth rate has not changed perceptibly. It may actually be increasing in Middle Africa, although data are lacking to verify this fact.

For the world as a whole, the birth rate is projected to decline from 34 to 25 per thousand by the year 2000, with the death rate dropping from 14 to 8.

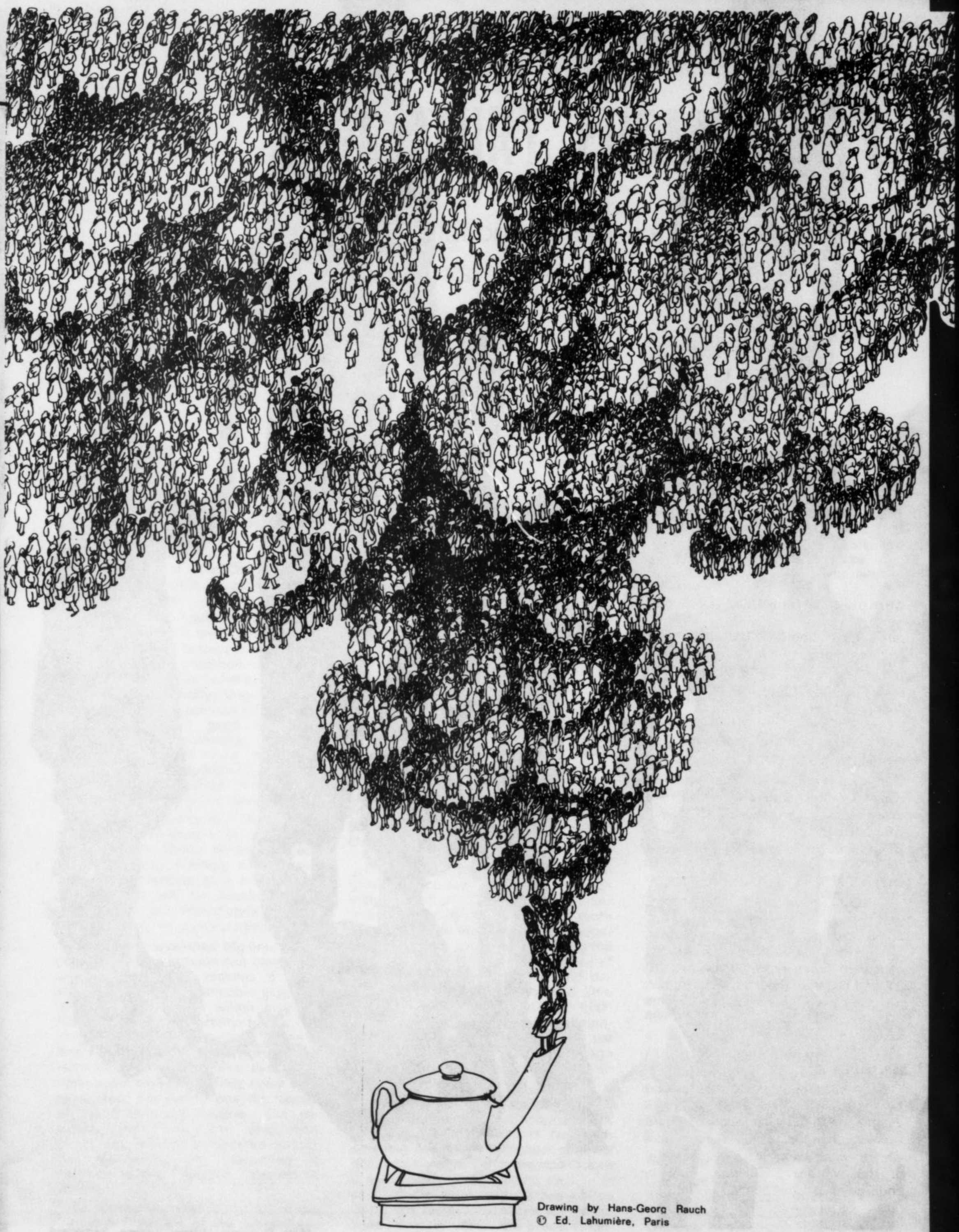
As for the more developed regions, the projections show only slight changes in the next quarter-century in regard to crude birth and death rates (annual number of live births and annual number of deaths per 1,000 people), gross reproduction rate and life expectancy.

Even after fertility drops below replacement level of 2 children per couple, a population can continue to grow for up to 70 years, due to delays built into the age structure.

The achievement of world "zero population growth" by 2000 is highly unlikely; this would require the total fertility rate throughout the world to drop far below replacement level, reaching 1.1 by 2000. (See page 16.) Even if the less developed countries were to achieve a net reproduction rate of 1 by 2000, they would grow by about 2.5 times by 2050. If current fertility remained constant and mortality declined, the population of the less developed countries could be more than 10 times its present size by 2050.

In the less developed countries seeking to slow population growth, the key elements are the *starting date* and the *speed of the decline* in fertility; these will determine when fertility levels will approach replacement.

Many developing countries may quadruple in population within 50 years if they do not move toward the goal of a reduced growth rate. Only a few nations—such as the Federal Republic of Germany, German Democratic Republic, Austria and Sweden—can expect populations to remain at about the present level. If a non-growing population is desired, this is likely to take several decades in most of the developed countries, but much longer in the less developed countries. ■



Drawing by Hans-Georg Rauch
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Photo © Alberto Flammer, Locarno, Switzerland

A STARTLING PICTURE A CENTURY FROM TODAY

World population growth cannot possibly stop before at least a century, the U.N. says

GIVEN enough time, reduced family size will probably become a universal achievement. But at present, and for some time to come, there are also a number of conflicting factors making it impossible to reduce high birth rates at once.

Multitudes of people living in extreme misery are unable to believe that any sustained behaviour can eventually ease their condition. In many farming communities where children are put to work early, they are still considered, quite rationally, as economic assets. For good economic reasons, the governments of many countries, some of them having a small or sparse population, favour a population growth which can still be advantageous to national development.

In the more developed regions, quite low fertility is already an accomplished fact. Here, the United Nations projections make only a single assumption, namely, that fertility at a bare replacement level will be reached fairly soon, though not immediately and not simultaneously in every region.

In the less developed regions, many contradictory arguments can have validity, so that there remains a wide scope for equally reasonable assumptions as to the path which may be followed by future fertility trends. In one respect all assumptions agree : sooner or later fertility will reach the net replacement level and then fluctuate about that level. They differ only as regards the timing and the speed of the intervening decline. The resulting " high " and " low " population projections will be considered further on. Meanwhile, the discussion is confined to the " medium " projection variant.

To appreciate what is implied in the " medium " variant of the projections, the reader may wish to take note of the approximate time by which a rather low level of fertility is assumed to be reached in each of eight major areas of the world. Listed below are the assumed dates when the gross reproduction rate is charted to fall below 1.10 (i.e. fertility becomes less than 2.25 children per woman) in each of the eight world areas:

Northern Tier	
North America	**about 2005**
Europe	**» 2000**
Soviet Union	**» 2015**
East Asia	**» 2005**
Southern Tier	
Latin America	**» 2030**
Africa	**» 2040**
South Asia	**» 2025**
Oceania	**» 2020**

It does not follow that population growth becomes negligible immediately thereafter. Depending on earlier trends in fertility, there can be a more or less sizeable proportion of the population at young adult ages boosting the crude birth rate (the annual number of live births per 1,000 people) and depressing the crude death rate (the annual number of deaths per 1,000 people) thereby causing further population increases. Stabilization can set in only later on, when the entire age structure has been sufficiently transformed.

Those concerned with, or alarmed by, the impending population increases may derive some comfort from the probable fact that the highest rates of population growth lie in the near future if not already in the recent past. In each of the eight major areas of the world the fastest increases are calculated to occur within the present half-century. When the next century begins growth will already be slower. The periods of the peak growth rate, and the rates of natural increase then attained, are listed below for each of the eight world areas:

Northern Tier	*Date*	*Rate per 1,000*
North America	**1955-60**	**15.6**
Europe	**1950-55**	**8.8**
Soviet Union	**1955-60**	**17.6**
East Asia	**1960-65**	**17.5**
Southern Tier		
Latin America	**1975-80**	**28.8**
Africa	**1985-90**	**30.0**
South Asia	**1970-75**	**28.1**
Oceania	**1955-60**	**16.9**

Though the peak rate of growth may already be passed, the amounts of population increase can continue to rise because the population base to which the diminishing growth rates apply still goes on augmenting. Listed below are the eight major world areas according to the five-year period when population increase reaches its largest absolute amount. Like South Asia, the entire world population is also calculated to grow by the largest amount during 2010-15 when the yearly addition will total 110 million.

Northern Tier	*Date*	*Annual increase (millions)*
North America	**1980-85**	**3.9**
Europe	**1960-65**	**4.0**
Soviet Union	**1955-60**	**3.6**
East Asia	**1980-85**	**17.3**
Southern Tier		
Latin America	**2005-10**	**17.2**
Africa	**2020-25**	**23.6**
South Asia	**2010-15**	**46.6**
Oceania	**1985-90**	**0.6**

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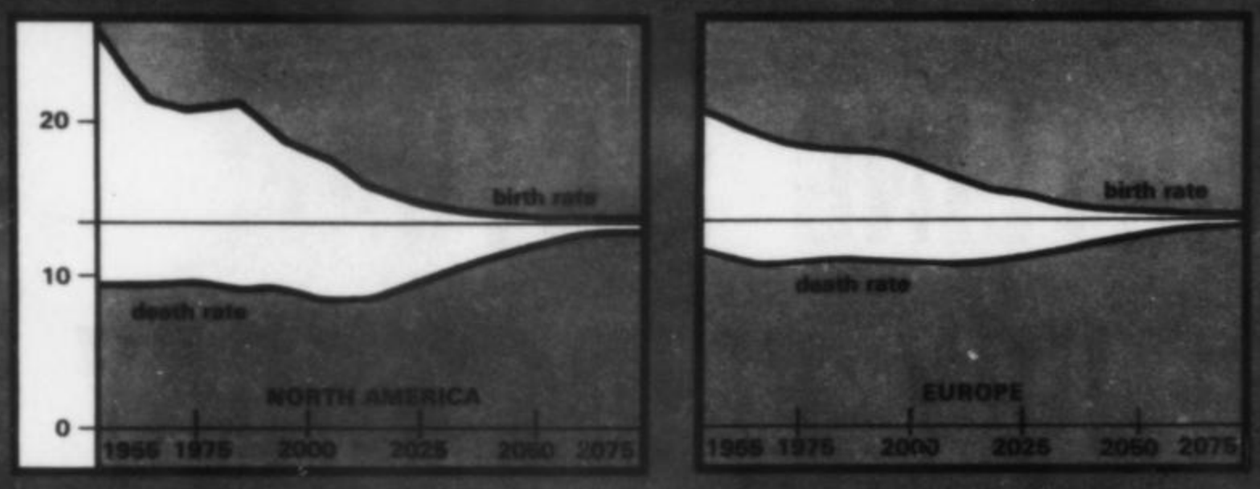
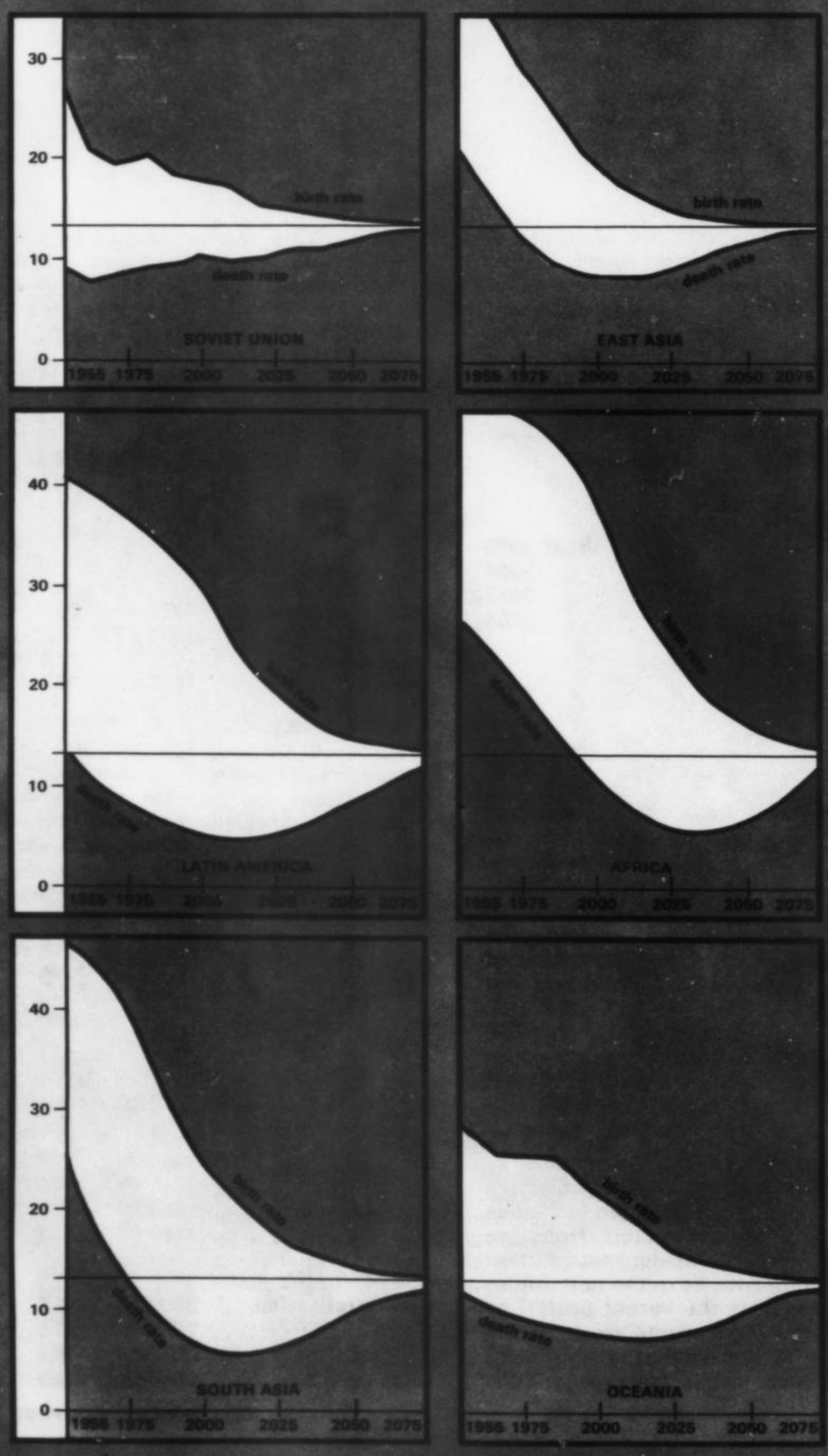


THE ROAD TO ZERO POPULATION GROWTH These eight charts show world population growth slowly subsiding until it approaches zero growth in about a century. Charts above show birth rates in Europe and North America falling and death rates rising until a stationary population (zero growth) is reached when they meet at the horizontal line about 2075. The birth rates for Latin America and Africa (below) are seen falling sharply while the death rates, after falling until about 2025, start rising. Both rates draw near together but they do not reach the horizontal line of zero growth by 2075. In East Asia and the U.S.S.R. zero growth is almost reached 100 years from now.



A STARTLING PICTURE *(Continued)*

Having quickly surveyed the recent and projected population dynamics in different world areas, we are perhaps prepared to accept that the potential for population growth is far greater in the southern tier of world regions than in the north.

South Asia, previously of smaller population than East Asia, will increasingly surpass it because of its greater growth momentum. In fact, the population of South Asia is projected to soar by huge amounts, and by the middle of the next century it may surpass the total world population of today. But South Asia grows from a population base which is already large. Speedier growth is likely to occur elsewhere. High growth rates, sustained over a longer period, are foreseen especially for Africa and Latin America.

The populations of North America and the Soviet Union have already been surpassed by these two continents, despite their own appreciable rates of growth. In both North America and the Soviet Union growth is calculated to abate in the coming decades, and the two populations may remain of nearly equal size for a long time to come. In this comparison, Europe seems to grow rather slowly. But even Europe may reach in the coming century a population size double that of 1925.

Confining our attention to the future only, we may say that between 1975 and 2075 the population of Europe may grow by another half and those of North America, the Soviet Union and East Asia may double. Meanwhile in Oceania growth may be two-and-a-half-fold, in South Asia almost fourfold, in Latin America almost five-fold, and in Africa nearly sixfold.

Past and anticipated future growth differ so much between the northern and the southern tier of world areas that an entire century can be envisaged during which the speed of growth in the south exceeds the maximum ever attained in the north. The fastest growth of the north may have already occurred during 1950-1975, when the annual rate averaged 1.4 per cent. Rates higher than this level may prevail in the south during all quarter-centuries from 1925 to 2025.

One consequence of such different rates of growth is a large displacement southward of the centre of gravity of world population. Three-fifths of mankind inhabited the northern regions in 1925, and still about one-half in 1975; in the coming century, the share of the north is apt to dwindle to one-third if not less. In 1925, one in every six persons in the world was a European, whereas in 2075 it may be only one in every seventeen.

Roughly the opposite occurs in the case of Africa, rising from a small fraction to a considerable proportion of the world's population. (See table top p. 30.) If the meteoric rise in the economic needs of the southern portions of humanity is to be met, not only economic development but also

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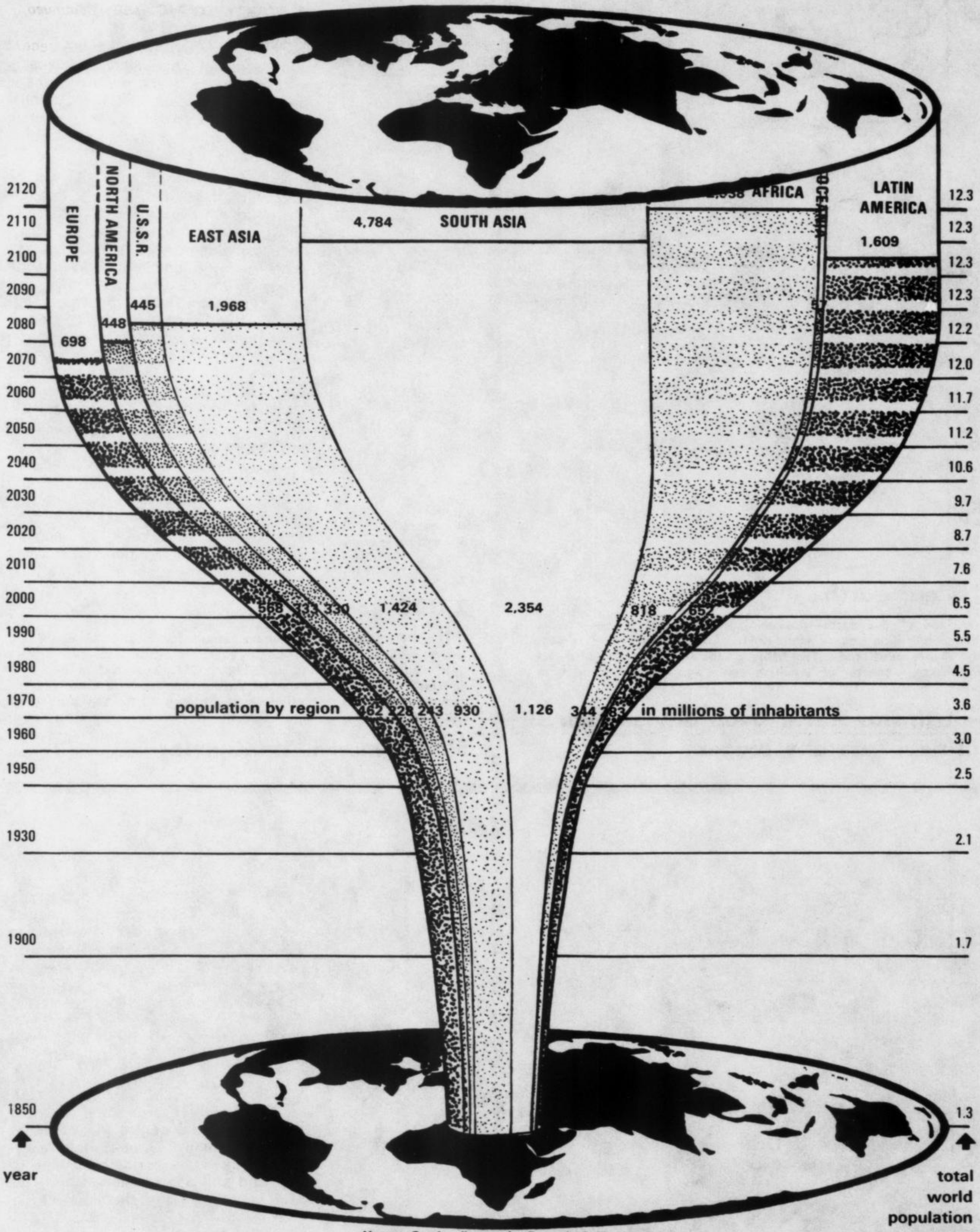
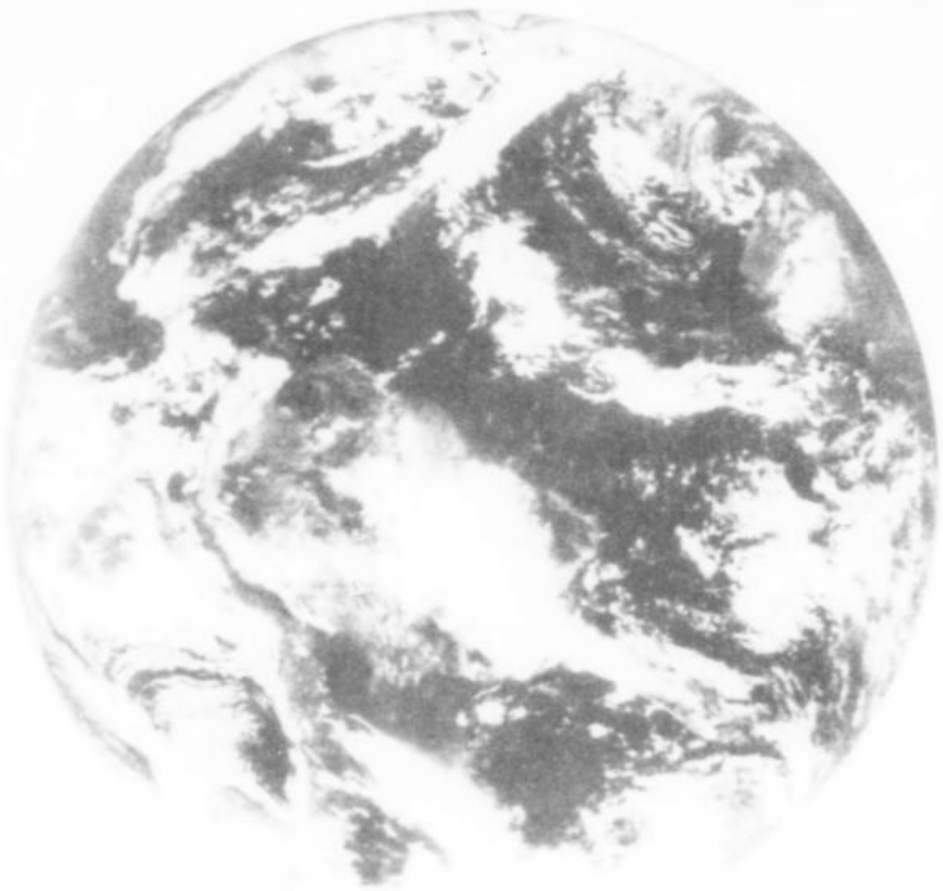


Unesco Courier diagram by François Guillot

THE CUP RUNNETH OVER ?

This goblet-shaped diagram, prepared by the "Unesco Courier" on the basis of United Nations demographic projections, illustrates the growth of world population between the years 1960 and 2075 on a scale and with a speed unprecedented in human history. The almost exponential curve forms the bowl of the goblet. The width of the goblet represents the total world population. Note the sharp difference between population growth in the 1850-1960 period (stem of goblet) and the years following. A further constant growth period is apparent after the year 2075. The diagram shows eight major world areas along with their populations and indicates the year when the population in each will cease growing (around the year 2120 for Africa, with 2,338 million inhabitants ; around 2070 for Europe, with 698 million inhabitants).

THE RISING TIDE



This is our earth...

The surface of the earth—the skin of our great globe—covers more than 500 million square kilometres. About 70 per cent is sea, and only 30 per cent land. Two-fifths of the land surface is desert and ice. About a quarter of a million years ago, Man stepped onto the stage.

The earth has never been any smaller... It will never be any bigger

In the year 1800...

The modern world is born in a cloud of steam and smoke and to the clang of iron. The Industrial Revolution! Factory production. The first trade unions. Railways are soon to span the continents. The conquest of disease has begun, the human tide rises to 1,000 million. Robert Malthus writes his famous Essay on Population.

...and the world is still the same size

One fiqure represents 50 million people.

2,000 years ago...

The pyramids of Egypt have stood for nearly 30 centuries, the Great Wall of China for 200 years. Buddha was born 500 years ago. Julius Caesar has just died. Christ's arrival is near. About 250 million people live on the earth. For most of them there is no shortage of land, but primitive technology limits the area they can cultivate.

Slowly man is multiplying

Our century dawns...

Now there are 1,650 million mouths to feed. The first motor-cars are here. The first aeroplane makes a 12-second flight. Modern technology begins to spread. Man's life-span is increasing. Still, hunger and disease hold down the rising tide over most of the earth's surface.

The world is still the same size

The material on this double page is reproduced from "The Rising Tide", a booklet published by the International Labour Organization for World Population Year 1974. Texts and illustrations by Robert Plant.

A thousand years later...

A millenium has wrought no great change in man's condition. The human family has grown to 350 million. Men are still mostly hunters, herdsmen, fishermen and tillers of the soil. In Europe, the great cathedrals are going up. The Vikings sail out to the West to touch the shores of North America.

The world is still the same size

Five hundred years pass...

The world's population is 450 million. Man is exploring its surface. Vasco da Gama sails round Africa. Christopher Columbus discovers a "New" World. The astronomer Copernicus observes that the earth is not the centre of the universe. In a single year one-third of the population of Europe perishes from the Black Death.

The world is still the same size

Today we are 4,000,000,000...

The human family has more than doubled since the beginning of the century. It now approaches 4,000 million. The great empires have gone. A world of independent nations is pledged to wage war on want. Free men everywhere dream of a better life for their children. The resources of our earth are feeling the strain.

...and the world is still the same size

At the end of this century...

By the year 2000, the world's population is expected to reach 6,500 million, four times the number at the beginning of the century. Nobody knows how many people our earth can support. Without a major scientific breakthrough, experts say perhaps 15,000 million. The good earth has served man well. Can we depend on it forever?

The world will still be same size

A U.N. inquiry on government population policies

Map © Cartographie de la Documentation Française, Paris, 1973

IN February of this year the United Nations Economic and Social Council published the findings of its second world inquiry on population and development carried out with the governments of 80 countries. The inquiry was made with the co-operation of the United Nations Economic Commissions for Europe, Asia, Latin America, and Africa, and sought to determine trends as regards government attitudes and policies towards population.

The inquiry revealed that in a considerable number of countries the population problem seems to be mainly confined to matters concerning the rate of natural increase. Many countries directly linked population policies with economic, social and political actions.

The Government of Egypt, while emphasizing the primary role of social and economic development, also gives due consideration to demographic policy and action.

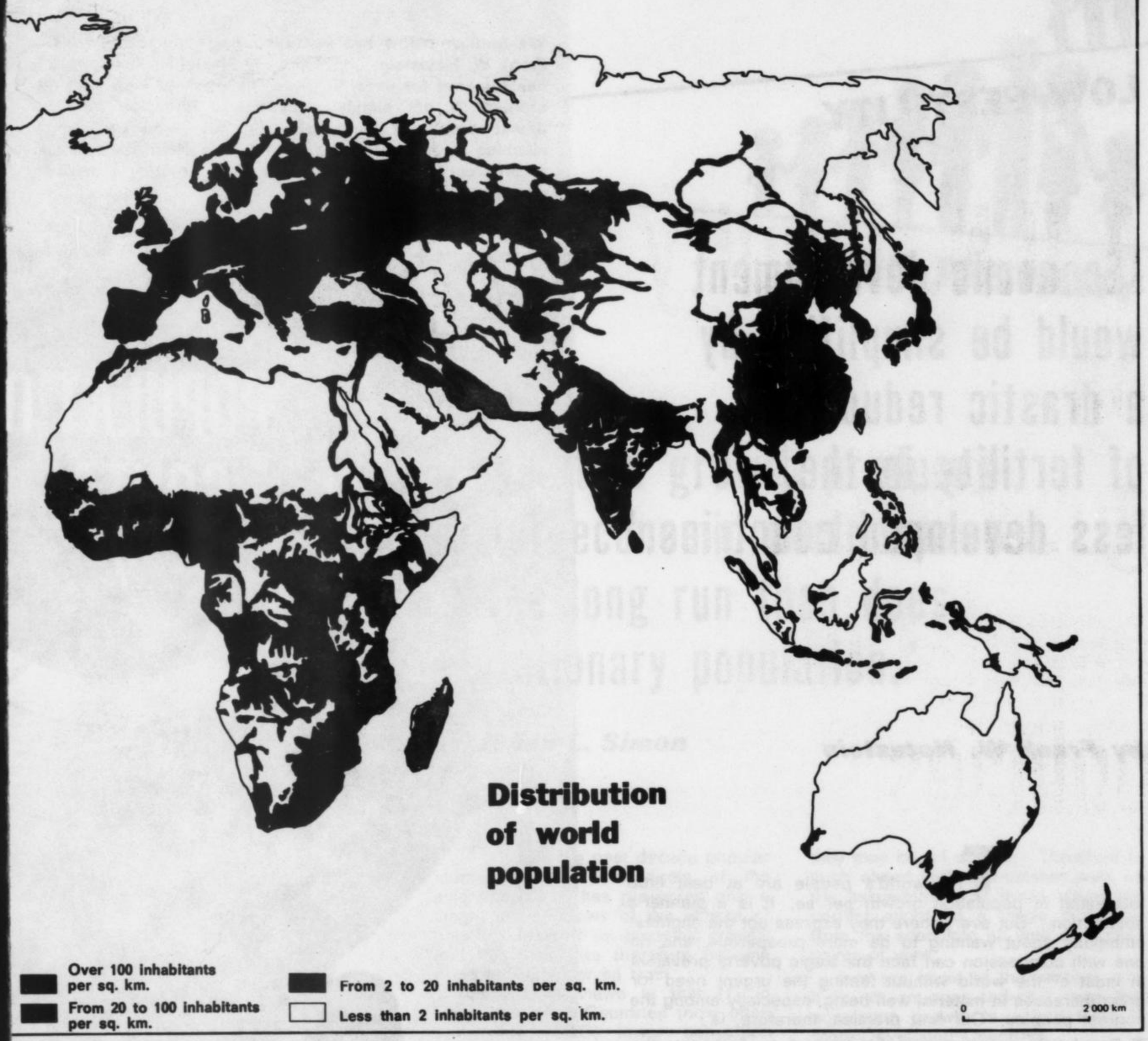
In its response, Panama declared: "In Panama it is believed that the problem is not situated in the control of population growth but rather in the elimination of poverty. This problem requires the execution of a broad economic and social policy which provides for just and favourable working conditions and assures equal opportunities for all."

A statement made by the Chinese observer at a meeting in Geneva of the United Nations Population Commission in November 1973, implies a similar position.

"We have learned from our own experience", Mr. Yu said, "that it is erroneous and untruthful to say that over-population is the main cause of the poverty and backwardness of the developing countries of Asia, Africa and Latin America and that a population policy is decisive in solving the problems of poverty and backwardness... China pursues a policy of developing her national economy in a planned way, including the policy of planned population growth. We do not approve of anarchy either in physical production or in human reproduction."

The view of the Soviet Union is expressed as follows:

"Historical experience shows that population growth cannot be an obstacle to economic and cultural development. Since social life is based on the conditions and level of material production, the solution of the problem of harmonizing economic and social development and population growth



consists not in adjusting population growth to the growth of the economy, as is the case in family planning, but in ensuring rates of economic growth which will exceed population growth rates and guarantee a rise in the standard of living of the people.

However, some countries clearly state that they have encountered great difficulties in raising the standard of living of their population, while simultaneously sustaining a high rate of population growth.

The Tunisian Government reports that it "is profoundly aware of the near-impossibility of raising the standard of living per inhabitant, of solving the employment problem, or even of continually ensuring the present rate of school attendance if the current rate of population growth continues."

It has adopted a number of legislative measures (postponement of age at marriage, limitation of family allowance to four children, liberalization of abortions for social reasons...)

The Government of Thailand also considers the high rate of population growth as an impediment to economic and social development: its policy supports voluntary family planning.

The U.N. Report summarizes its findings in the major regions of the world as follows:

Africa

Clear indications on the goals of national population policies are given in the responses of three out of 15 African countries. These are Egypt, which is seeking to reduce its birth rate to 30 per thousand by 1978, Kenya, also striving to lower the birth rate, and Tunisia where the long-term target is to attain the present level of fertility in Italy (17 per thousand) by the end of the century.

In Madagascar and Swaziland there are good prospects that family planning will be given higher priority in the development plans of these countries. Ethiopia, Liberia, Malawi and Zambia have not yet formulated any population policy, although Ethiopia has undertaken a number of population studies. Liberia expects to develop a policy after the population and housing census of 1974.

North America

While the United States of America does not have an officially formulated population policy it takes a positive position in making available family planning services to all people desiring

CONTINUED PAGE 32

LOW FERTILITY

'Economic development would be simplified by a drastic reduction of fertility in the less developed countries.'

We publish below two views on the population problem. Frank W. Notestein, the "father of American demography", has fostered for over 30 years the point of view that the problem is not simply a matter of choosing between development and family planning but is to use family planning as an important part of the development process. A different position is presented by another American demographer, Julian L. Simon.

by Frank W. Notestein

THE world's people are at best little interested in population growth per se. It is a planner's abstraction. But everywhere they express not the slightest ambiguity about wanting to be more prosperous, and no one with compassion can face the tragic poverty prevalent in most of the world without feeling the urgent need for great increases in material well-being, especially among the poorest peoples. Our first premise, therefore, is :

■ Population policies must be geared to fostering the processes of economic development and the more equitable distribution of income. Moreover, no population policy can be a substitute for economic development. Poverty can only be cured by enhanced production.

The fund of life is renewed and maintained by near balances of birth and death, of which there are two polar types : the inefficient one, based on very high birth rates cancelled by very high death rates, and the efficient one, based on low birth and death rates. If these two combinations exhausted the possibilities there can be no doubt as to which combination people would universally choose for themselves. In all normal circumstances, given a realistic choice, people prefer health and survival to sickness and death.

CONTINUED PAGE 24

FRANK W. NOTESTEIN *is the internationally known American demographer. He was the first Director of the Population Division of the United Nations. Visiting Senior Research Demographer, and former Director of the Office of Population Research, Princeton University, he is President Emeritus of the Population Council. This text is an abridged version of a paper he delivered at a United Nations symposium on Population and Development, in Cairo last June.*

Photo © Richard Frieman, Paris

HIGH FERTILITY

'Population growth produces better economic performance in the long run than does a stationary population.'

by Julian L. Simon

IN the past decade popular journalism, and even some of the scientific press, has presented only a single set of views of the effects of population growth on economic growth, and this view has therefore become accepted as received truth.

This set of views is that (1) in Less-Developed Countries (now often abbreviated LDC) lower population growth means faster economic development (2) in More-Developed Countries (abbreviated MDC) lower population growth means higher per-worker output and income; and (3) continued population growth means world-wide disaster, as described in the Club of Rome's *Limits to Growth*.

But these conclusions and analyses are *not* necessarily correct—though they *may* be, of course. Therefore to push ahead with anti-natalist laws on the assumption that these views *are* correct *might* be a tragic mistake—from the economic as well as human points of view.

Here are some of the reasons why it is not an open-and-shut case that population growth is a bad thing in More-Developed Countries.

Most important is that whether population is now too large, or is growing too fast, cannot be decided on scientific grounds alone. This judgement depends upon one's values, a matter about which science must be silent.

Science can only reveal the likely implications of various policies. The judgement about which policies are good or bad and which policies should be chosen rests squarely upon one's values. Whether you think that it is better for a country to have a population, say, of 50 million human beings at $4,000 per year per capita income, or 100 million human beings at $3,000, is strictly a matter of what you consider important.

Therefore, a judgement that population growth is too fast or too slow is not a scientific judgement, but rather a value judgement.

Historical and cross-national comparison data give no reason to believe

CONTINUED PAGE 25

JULIAN L. SIMON, *of the United States, is Professor of Economics and of Marketing at the University of Illinois. In recent years he has studied such topics in economic demography as the effects of population growth on economies, the welfare economics of additional children and cost-benefit analysis of birth control campaigns. At present he is completing a research volume on the economics of population growth. This text is an abridged version of a paper he delivered at Unesco's Conference on Law and Population, held in Paris in February 1974.*

Low fertility and economic growth

(Continued from page 22)

The polar combinations of high birth and death rates or low birth and death rates do not exhaust the options. Our choice, however, is limited. High death rates chronically coupled with low birth rates lead to extinction, and high birth rates coupled indefinitely with low death rates are impossible in a finite world.

In principle, high birth rates can be coupled with an epoch of low death rates to be followed by an epoch of high death rates. But a systematic policy of seeking longevity now at the cost of short life later seems a particularly vicious means of visiting the sins of the fathers on the children of the coming generations. It surely is not something that the world seeks to do as a matter of principle.

IF we pursue this line of thought, we must quickly come to our second premise that:

■ The ultimate goal of the world's population policy must be to achieve an equilibrium based on low birth and death rates that can be sustained throughout a distant future for the world and its several parts.

The fact that a demographic equilibrium based on low birth and death rates is the option that all the world would ultimately choose for itself if it could, does not mean that it is immediately either necessary or desirable. Therefore, our third premise is that :

■ Policies supporting population growth, or its necessary concomitants, must find their justification as desirable way-stations on the path to stability, health, and prosperity.

The foregoing do not incorporate the only, or even the most important, human values. The values *are* among the most universal, and their attainment would require fulfilling other universal wants, such as the need for education. Certainly all of us would put our right to political freedom, to philosophical and religious beliefs of our choosing, and to opportunities to pursue a life of personal fulfilment on still higher planes. None of these, however, need come into conflict with the universally wanted equilibrium of healthy prosperity. They would not, that is, given the essential condition for policy formulation at the international level that :

■ No one is free to advocate for others policies that in similar circumstances he would not be willing to accept for himself and his family.

In the light of these goals, what can be said about the costs and benefits of population growth?

Clearly there are cases in which growth is needed to provide a large enough population to reap the economies of large-scale production. But most countries that need a larger area to provide the economies of scale could attain it much more rapidly by lowering the barriers to international trade than by waiting for their populations to grow, however fast.

It is possible for a nation to be too sparsely settled to be efficient, but there are not very many such cases and the existence of empty space does not provide the proof. There is usually a reason for low density such as the limited nature of the resources, the vagaries or severities of the climate, the prevalence of disease, the displacement of labour by machines, and the lack of political stability or of communications with the outside world. It would be well if governments could face the fact that there are a great many places and conditions in which people simply do not want to live.

In some instances, however, areas have been kept relatively empty for reasons that modern technology and the control of disease have made irrelevant. In these circumstances rapid growth may be needed. It is a fair indication that more rapid growth is needed in a region when its wage rates are high in terms of the national average, and when the stream of internal migration is moving in that direction already. All too often the empty spaces that we are told need more population prove, on closer inspection, to have wages that are lower than the national average and are experiencing a net outward movement of people.

In such instances "too little" population really means too little population to provide owners with opportunities for efficient exploitation.

The need for larger numbers is often urged on non-economic grounds. It is necessary for national power, or simply as a matter of prestige. Surely there never was an age when such reasoning should have less force. The world has always been led by the people with superior technology, and it was never more true than in the atomic age, when the world can be ruined but cannot be ruled by aggression.

Nor would one think much attention would be given to population size as a matter of prestige. Quite clearly many of the world's small healthy and wealthy nations draw more admiration and exert more influence than countries many times their size. One only has to think of the countries of Western Europe, Canada, Australia, and New Zealand to realize how little either power or influence turns on issues of population size.

In short the number of cases in which a rational argument can be made that larger numbers are needed is very small.

A much stronger case can be made that the world needs smaller rather than larger numbers. This case does not rest as much on the paucity of resources as is often thought. Good land is in short supply, but recent history has shown that capital and skill can be fairly effective substitutes. We hear a great deal of talk about nearing the end of economic growth because of a shortage of resources and of mounting pollution.

It seems to me that the world has never been so close to being able to obtain a supply of basic resources beyond the imaginings of all previous generations. At least this is my reading of the prospects for virtually unlimited energy from the nuclear sources.

With an almost unlimited supply of cheap energy, vast supplies of low-grade minerals become potentially available for use and recycling. It seems to me that modern science and technology have the capacity of bringing the world's production of both food and manufactured goods to levels about which we have as yet scarcely dreamed.

Nor do the risks of pollution negate this potentiality. The problems are serious but they do not lie as much in the nature of our technology as in our faulty economic arrangements, whereby the polluter and his product do not bear the social costs of the pollution. Obviously it will be expensive to clean up, but the expense is one that a truly prosperous society can well afford. We may well be at the beginning rather than the end of economic growth.

CONTINUED PAGE 26

High fertility and economic growth

(Continued from page 23)

that faster population growth is associated with lower economic achievement in More-Developed Countries. One piece of historical evidence is the difficulty of France to excel economically despite its low birth rate in the past 100 years.

The experience of various More-Developed Countries displaying 10-year rates of growth of population and output per capita for those for which data are available for periods of roughly 90 to 115 years, and roughly 43 to 70 years, respectively, show no clear relationship between population growth and economic growth.

EVEN when they speak as citizens rather than as scientists, there is *not* consensus among scientists that there is now overpopulation in the United States, or that population growth in the United States is too fast for the good of the U.S. or for the good of the world. For example, Ansley Coale, as respected a demographer as there is in the world, does not judge that there is a population crisis in the United States (though he does worry about population growth in poor countries).

Frank Notestein, the elder statesman of American demographers, finds nothing but "aesthetic grounds" for wishing to slow population growth in the U.S. "I would like to come to zero population growth, but with no great haste, and without making important sacrifices in the process."

But Notestein's and Coale's messages are less exciting than the alarms about impending starvation, misery, death, and oblivion sounded by those who favour population control. The drama of such alarms may account for the wider publicity they have received. This is simply because an additional baby this year does not *produce* goods, but he does *consume* goods; so if the pie is the same size and there are more claimants to it, each must receive a smaller share.

But though this kind of simple-minded arithmetic is at the base of most reasoning about the economic effects of population growth, it really tells us nothing about the effects of population growth upon the economy. To understand population growth's effects we must understand its effect upon *output per worker*. This is a longer-run concept, and much more complex.

The discrepancy between the facts and the theory has provoked various explanations:

1. Population growth provides a "challenge" which evokes the "response" of increased effort by individuals and societies.

2. There are advantages in having proportionately more youth in the labour force.

3. Growth in population creates additional opportunities which facilitate changes in the MDC economy and the society.

4. Faster population growth causes faster growth of technological knowledge and its adoption.

Among these explanations, the fourth is both the most impressive and also the easiest to integrate with conventional economic theory and its Malthusian element of diminishing returns.

I performed an analysis to quantify the technological-advance factor in order to arrive at an overall estimate of the effects of population growth upon per-worker income in a developed country. I found that areas with larger rates of population growth, after initially falling behind in per capita income, usually overtake areas with lower rates of population growth, in much less than half a century in some cases. That is, though an increment of population initially has a negative effect upon economic welfare, after some decades the effect has become positive.

This analysis should *not* be taken to prove that population growth is *definitely good* in the long run in More-Developed Countries. But it should be evidence enough that population growth is *not clearly bad*.

In the very short run—say next year—it is unquestionable that per capita income will be lower if there are more children than otherwise. If there are more babies, almost the same amount of food will still be produced, but it will be split among more mouths. Furthermore, more babies mean greater demands on public resources—more health care immediately, and more schooling—which means that resources will be pulled away from other possible uses that might otherwise help raise per capita income. The point is that babies consume but do not produce.

In the somewhat longer run, more babies today mean that people will be added to the labour force in a few years, but land and capital will be no bigger than otherwise—at least at first. So production output per worker will be lower than otherwise, with negative effects on income per person (*).

Furthermore, these effects cumulate. More children may also reduce household saving, which may increase the cumulative effect. As the effect grows at compound interest, the lower-birth-rate case achieves an even greater advantage in per capita income over the higher birth-rate-case—for a while, anyway, say 50 years.

BUT the data do not support this a priori reasoning. First, there is again the *historical* fact that population grew at an unprecedented rate during the period of Europe's development from 1650-1750 onwards when European countries were Less-Developed Countries. Economic historians have concluded that slower demographic growth would have hampered England's economic development during the Industrial Revolution. And there is no significant correlation in the historical series of population growth and economic growth over the past century or half century in those countries now regarded as developed.

Second, the evidence from among the presently-developing countries on the overall relationship between contemporary population growth and economic growth certainly does not reveal a consistent pattern.

Richard Easterlin finds "that there is little evidence of any significant association, positive or negative, between the income and population growth rates."

Simon Kuznets compiled data on 21 countries in Asia and Africa, and 19 countries in Latin America. In the separate samples, and in the 40 countries together, there is *not* a significant negative correlation between population growth and growth of per capita product; the relationships are actually positive though very weak.

Jean-Claude Chesnais and Alfred Sauvy last year analysed the relationship between demographic and economic growth in the 1960s for various samples of up to 76 Less-Developed Countries and found non-significant correlations (mostly slightly positive).

These overlapping empirical studies by world famous specialists certainly do *not* show that fast population growth in Less-Developed Countries

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(*) *Output per worker or output per worker hour, and not income per person or income per consumer equivalent, is the appropriate measure of the productive power of an economy. And productive power rather than the quantity of consumption would seem to be the underlying concept in economic development.*

The 20th century has witnessed an astounding increase of cities with "million-plus" populations—from 11 in 1900 to 75 in 1950. By 1985 the world's "million-plus" cities will probably number over 270. Far right, high-rise housing blocks in an Asian city contrast sharply with meagre catch of fish (photo right). Can world food harvests match the speed of the global population growth?

Photo © Richard Frieman, Paris

Low fertility and economic growth

(Continued from page 24)

It is to be earnestly hoped that we are at the beginning, because it is poverty that is the great destroyer. It is poverty so abject that the future takes a terrible discount against the needy present; poverty that destroys the forests and soils, that lets the rivers flood, that malnourishes the children into stupidity, debilitates them with disease, and withholds knowledge of the earth's potential. Poverty is the great destroyer.

The potentialities are great but the realities are grim. The constraints of high density in purely extractive economies are clear. In the less developed countries population densities often are already so great that simple systems of production are no longer adequate to prevent crushing poverty. The real risks are those of coupling complexity and high density with poverty. Complex modern economic systems are highly productive, but they are so completely interlocked as to be vulnerable to disruption.

In the rich countries, where there is ample room for retrenchment in times of turmoil, the risks are tolerable. But in the less developed countries, where large proportions of the population live close to the margins of subsistence, the risks of complexity are grave, as the recent history of starvation during major civil disturbance amply proves.

Complex systems of production in poor countries with high population density may prove to be lethal in times of trouble, but the populations are often already so large that the absence of complex economies would be lethal in normal times. The problems of economic and social development would be much simpler if the densely settled countries had smaller populations. Their huge numbers already present substantial obstacles to the modernizing process on which all hope for future welfare depends.

To say that rather few countries actually need larger populations to support their social-economic development is not at all the same thing as saying that further population growth is undesirable. Throughout the world, with very few exceptions, it would require an almost cataclysmic disturbance to stop population growth immediately. In the vast majority of countries an immediate end to growth could only be attained by a two or three-fold increase in death rates, which would not only violate our basic values, but in all probability be sufficiently disorganizing to set back the entire developmental process.

Even in those cases in which one can imagine that population growth might be stopped immediately by drastic declines in fertility it is doubtful that such a development would be desirable. In almost all of the countries the higher birth rates of the past have left populations with rather large proportions of youth. As these large numbers of youth move into the childbearing ages, even if they bear only enough children to replace themselves, there will be many more births than deaths. Indeed, if fertility were to fall to the replacement level immediately, it would take more than 75 years to bring population growth to a complete halt in most countries.

It seems quite impossible to reduce populations in the near future or even to bring growth to a quick end. But it should be possible to reduce the extremely high rates of population growth that characterize particularly the most poverty stricken of the less developed countries. Today most of them are growing more rapidly than ever before in their history.

Many learned discussions have developed about the economic consequences of such growth. To me the issue

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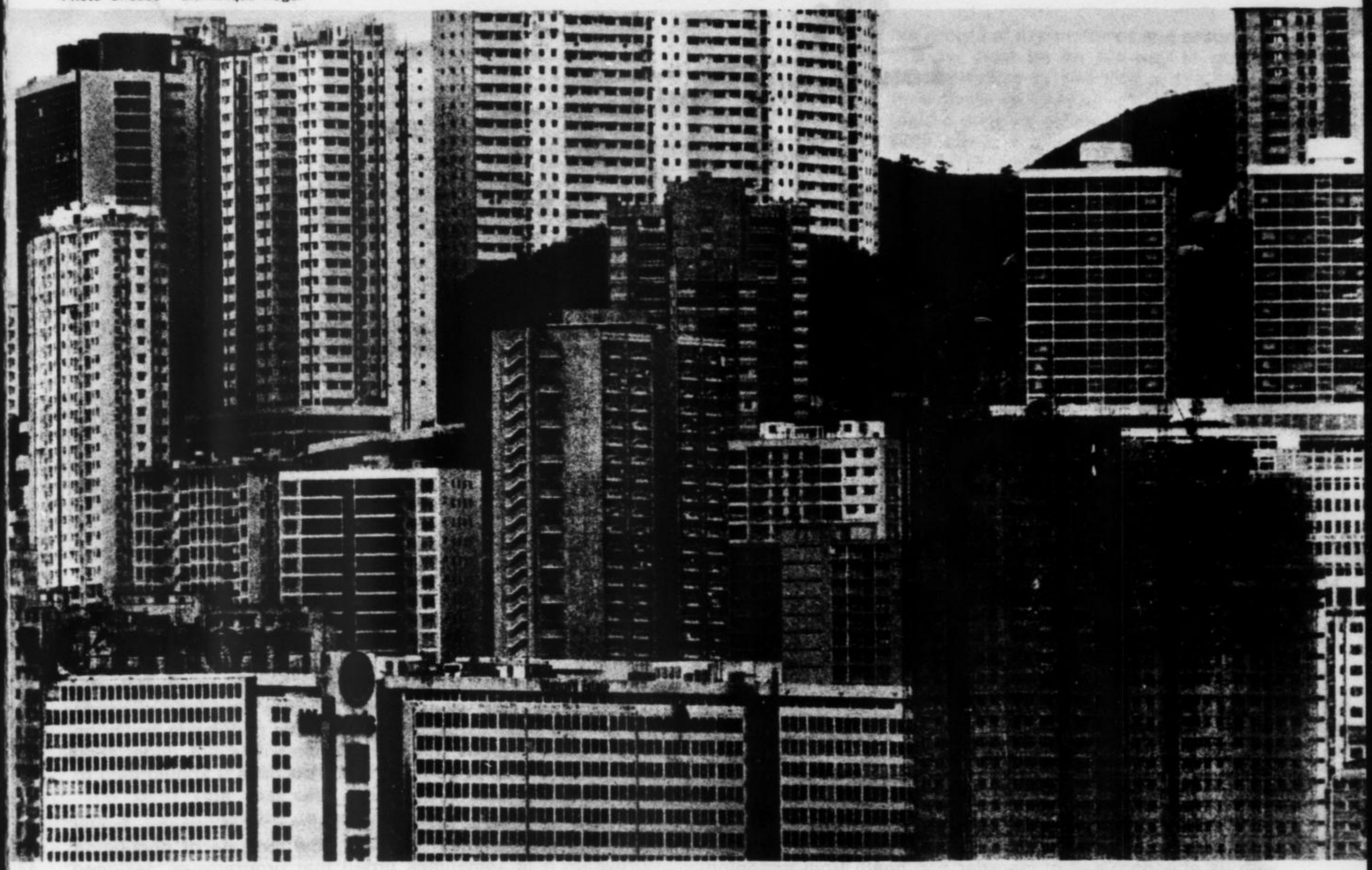
Photo Unesco - Dominique Roger



High fertility and economic growth

(Continued from page 25)

increases per capita income. But they certainly do imply that one should not confidently assert that population growth *decreases* per capita economic growth in Less-Developed Countries.

When the theory and the data do not jibe, either (or both) may need re-examination. To re-examine the theory I made a number of studies embodying not only the usual factors affecting population and economic growth, but also other considerations.

For instance, population growth may induce people to work longer hours. Kusum Nair, a close observer of rural India, makes us sadly aware of how the lack of aspirations and other psychological make-up keep Indian agriculturalists from striving and working longer hours. If one decides to work longer hours for more product, different sorts of production techniques make sense. This is what happened when men were forced to abandon the heavy-land-using hunting and grazing ways of life to work hard at primitive agriculture.

The shift to more intensive use of the land then makes more room for even more people. Then later there will again be a press upon resources. Again people are pushed to work harder and use more advanced techniques. And so on. Clearly this has been the story of the growth of civilization.

The results of the simulation suggest that *positive* population growth produced considerably better economic performance in the long run (120 to 180 years) than does a *stationary* population, though in the short run (60 years) the stationary population has very slightly better performance. A *declining* population does very badly in the long run. And in the experiments with the "best" estimates for a representative Asian Less-Developed Country, moderate population growth doubling over 50 years has better long-run performance than either fast population growth (doubling over 35 years) or slow population growth (doubling over about 200 years).

It will surprise almost no one that very high birth rates are not best. But the outcome that very substantial birth rates produce higher incomes in the long run than do low birth rates runs against the conventional wisdom.

The standard response when someone questions the need to immediately check population growth in More-Developed Countries is a series of calculations about how after a certain number of doublings of population there will be only standing room, or a solid mass of human bodies, on earth or in the More-Developed Countries.

This apparently shows that population growth must stop sometime. Of course population growth must stop sometime, just like any other growth process must stop sometime. But the question is—must growth stop now? And the standing-room-only sort of argument is quite inapplicable at this point in time.

Population alarmists assume that if we do something now we will inevitably continue to do the same in the future. But one need not believe that if people decide to have more children now, they will also continue indefinitely to have them at the same rate.

By analogy, because a man decides to have another bite of pie today does not mean that we should worry that he will eat himself to death. If he is like most people, he will stop after he recognizes a reasonable limit. But many seem to have a different model of people and fertility, that of the drunkard; if he takes one drink, he's down the road to hell.

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Low fertility and economic growth

(*Continued from page 26*)

seems quite straightforward. The less developed countries are bearing the enormous costs of modernizing their educational systems, their methods of disease control, their agricultural production, their manufacturing equipment, their transport and their civic services. It is unfortunate that they have to carry at the same time the burden of the most rapid population increases of their histories. With the technology in transition, it is bound to be difficult at best to find productive roles for all of the population, but the problems are vastly complicated when the stream of entering workers doubles in size every two or three decades.

The nexus of problems centering on the expansion of the food supply is particularly difficult. The less developed nations of dense settlement need to triple their food supply by the end of the century to improve the diet of populations that are expected to be twice their present size by that time. Agricultural specialists seem to believe that it is technically possible for the Green Revolution to achieve that goal if all goes well.

But such gains can only be made by a high degree of modernization which depends on other inputs than conventional labour. In short, in order to produce the amount of food required, substantially smaller proportions of the labour force can be used in agriculture. There may well be massive flights from the land, of which the present trek to the city is only the beginning. The resulting train of unemployment and underemployment in urban squalor may well threaten the maintenance of political coherence, with its attendant risk of disorder and death from sweeping starvation and disease.

THIS agricultural displacement seems to me to carry the most serious threat to welfare of the next decades. The cure lies partly in the use of labour-intensive methods, but still more in the development of non-agricultural industry with all its heavy requirements for training and capital investment. Rapid agricultural and non-agricultural development may well be essential to avoid the most serious of human tragedies in the next decades.

The danger is grave indeed that the less developed countries, faced with this spectacular growth, will continue to see, in the future as they have in the past, large proportions of the developmental effort absorbed in meeting the minimum requirements of growing numbers rather than contributing to the enrichment of life. It seems self-evident that these problems would be simplified by a reduction of the rate of population increase.

There is coming to be very general agreement with this view that the rate of population growth needs to be reduced, particularly in the less developed countries. The main objection one hears now is that other things are more important. Of course they are! One must protect the living before giving heed to the future. But this is precisely the viciousness of rapid population growth in this setting. Today's needs are so pressing we can scarcely look ahead. It is difficult to escape the conclusion that the problems of economic development would be greatly simplified if the rate of population growth could be cut by a drastic reduction of fertility in the less developed countries.

The problems of the more developed countries are much less severe. Their fertility is already quite low, often close to, and sometimes below, the level required for the long-run maintenance of a stationary population. Their populations are large, and are close to an equilibrium situation. It is to be hoped that they set their targets at or a bit below this replacing level and then concentrate on problems of the quality of life in a situation that is in equilibrium with the environment.

The conclusion is clear. We have an additional reason for fostering social-economic development. It is essential to alleviate the poverty of existing populations and to provide for the larger numbers which the future will almost inevitably bring. But also it is needed to foster the motivation for reduced childbearing which will be needed if our efforts at modernization are not to be frittered away in support of ever larger numbers living in poverty. There seems to be no major group opposing this position.

The difficulty lies, not in disagreement, but in lack of serious commitment in a world preoccupied with more immediate problems in which its parochial interests are sharply involved. Perhaps demographers, who led the way in calling attention to the importance of development in the transformation of value structures, have paid little attention to economic development as a specific population policy on the simple grounds that if development is not undertaken for itself, it will not be undertaken because it should help to reduce birth rates.

There is every reason to believe that strong family planning programmes can help slow the rate of population growth. It is sometimes urged that programmes designed to spread contraceptive practice are irrelevant where the large family system remains intact and parents want more rather than fewer children. This interpretation is too simple. There is a wide diversity of values in every society. The predominance of the traditional system does not preclude the presence of the emerging system in some degree. The problem is to support the new values that are centered on fewer children to whom better opportunities for health, education, and prosperity can be given.

One way to foster the new values is to make it possible for those already motivated to limit their childbearing as simply and effectively as possible, thereby gaining community examples of the merits of the smaller family. It is true that values mediate behaviour, but it is also true that behaviour mediates values, as any observer of fashions in dress must agree. Probably there is no more effective means of communicating the small-family ideal than to support the efforts of those already motivated by making contraception simple, attractive, and inexpensive to practise.

In addition, serious educational programmes are also needed. Such programmes should draw upon as wide a range of legitimating authority as the medical, religious, and governmental leaders can supply. The essential message, however, has nothing to do with national population. It should be concentrated on the advantages in the modern world of smaller families to both children and parents and on the nature of services available for their attainment.

Such work should not be thought of as a substitute for programmes in the fields of health and education which are so clearly a part of the modernising process and desirable in their own right. Moreover, since the wanted innovation can be used as an excellent carrier for those that are needed but less well understood, it is often desirable to combine family planning with the maternal-child health services.

Frank W. Notestein

High fertility and economic growth

(Continued from page 27)

Second, population alarmists seem to think that people (especially poor people) have babies without rational thought, and without wanting them. It is factually wrong, however, to think that "primitive" people breed prolifically and without rational control. (For a summary of the evidence see Julian L. Simon "The Effects of Income on Fertility" published by Chapel Hill: Carolina Population Centre, 1974.)

Eventually most parents in present-day poor countries will be able to expect that all their children will live to maturity. At such time parents will bear just as many children as they want, and no more. And at such time the birth rate will be much lower than it now is in poor countries, being instead like what it is today in the countries where life expectancy is high.

The birth rate may still be high enough for population to grow at a substantial rate, but this will respond to what people can afford, just as within industrialized countries a rise in income seems to increase the birth rate, and a drop in income (as in the depression of the 1930s) lowers the birth rate.

ALL this seems pretty sure, barring cataclysm; the question is how soon it will come about.

The quickest and surest route to the rosy situation portrayed above is, I think, by further increasing life expectancy, and especially by reducing child mortality. Recent empirical studies have shown that when child mortality falls, the birth rate falls, too. And the best way to reduce child mortality is by better nutrition.

Until mortality falls very low, parents will continue to have more children than they want, on the average, because of the conservative but rational desire to err on the high side rather than the low side. That is, parents are more willing to chance having too many children rather than too few, too many sons rather than none.

Recent analyses have shown that if people really do behave in this fashion, the effect of a fall to a very low mortality rate could have a terrific effect on the birth rate in poor countries, in exactly the direction the population-control enthusiasts wish.

It is interesting that many Asians who work in their population programme have come around to this general viewpoint of their "population problem". But some Westerners have the opposite view with respect to death control. They would lessen the emphasis on increasing life expectancy.

But I am sure that to postpone the drop in mortality will not achieve what population-control extremists want as well as will perfect death control—and it is morally abhorrent, too, at least to me.

Pollution is a red herring in discussions of population. Pollution can be prevented if we put our minds and our money to it. Man can clean up the mess that man makes—without limiting births. In little more than a decade England has cured pollutions that lasted for a century, and probably made England a healthier environment than it ever was.

Trash and junk accumulation surely is one of the easiest problems to dispose of. Berlin built seven hills of World War II rubble which now add to the beauty of the city, I'm told. In flat central Illinois where I live we could certainly benefit from a hill built of old cars and glass bottles, hammered down with pile drivers and covered with a layer of dirt and trees. This would provide climbing in the summer, skiing in the winter. Rather than being a liability, our solid waste could be a blessing to us.

It seems to me that modern man in his populousness has great power to make his environment even better than primitive man found it. And an immediate decrease in the birth rate is quite irrelevant to most immediate pollution problems. This is especially true because the main determinant of the total amount of pollution potential is Gross National Product, and babies don't affect GNP for 20 years or so.

Many fear that if there are more people now, there will be less resources left for people in the future.

But in any case, we need *not* assume that more people now mean less energy, water, air, building materials and fertile soil in the future. We should have learned by the fate of the prediction made in 1865 by Stanley Jevons, one of the century's truly great social scientists, that England's industry would soon grind to a halt due to exhaustion of England's coal.

Those who worry about natural resources seem to have "out-go vision". They are like someone who sees only his record of expenditures and assumes that he must be on his way to going broke—failing to see that at the same time there is income, which may well yield a positive balance. Many people note our *use* of resources but fail to see our *creation* of resources—planting of forests, exploration of new oil fields and invention of ways to obtain oil from rock, discovery of substitute sources of energy and nutrients, invention of new tools of all kinds.

Clearly we now have *available to us* vastly more resources of almost every kind than did people in any preceding age. And there is no reason to doubt that this process of the expansion of resources will continue in the forseeable future—that is, as far into the future as we can sensibly plan for now.

Some people argue that there is one resource that is inevitably diminished as population grows—space. It is getting harder to find spots in the West where a man can camp for a week in perfect solitude, it is said, and more people will make it even harder.

It is true that more people in the U.S., say, would mean less chance to be able to enjoy the wilderness of Montana in solitude. But this does not by itself suggest that more people are a bad thing. Rather, it only suggests that you must balance your desire for space and privacy against your other values about humanity, including the number of people you think should enjoy life.

Also, though one's chance for solitude would indeed be diminished by a bigger population, this does *not* mean that the overall effect of more people is less privacy and opportunity to enjoy nature. Clearly one's opportunities to enjoy nature are greater than were any city dweller's a hundred years ago—because people invented the auto and airplane, and created roads. And your chances of enjoying a *variety* of wilderness all over the world are much greater than *anyone's* were 100 years ago, even a prince's.

CONCERNING values—this is really the key issue in judgements about population growth. Let us be absolutely clear on this: All judgements about population size hinge on value judgements. Economists, for example, have long used the concept of "optimum population" for a given country, and this sounds very scientific. But these discussions about optimum population sizes or growth rates must have some criterion of better and worse, and this criterion is usually per-capita income of the present population, including "quality of life" considerations.

No one, however, is prepared to take the per-capita income criterion to its logical conclusions. Two implications of this criterion are:

(1) Do away with all lower-income

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A STARTLING PICTURE A CENTURY FROM TODAY *(Continued from page 16)*

the development of science and technology will have to include efforts to make more efficient use of resources in warm and tropical climates.

Another aspect of population distribution is its relationship to land area. For instance, in 1975 Europe is still the most densely inhabited major area, with 97 persons per square kilometre of land. In the second half of the coming century, density is apt to become nearly as great in Latin America and Africa, whereas South Asia, with perhaps 240 persons per square kilometre, is likely to become the most densely settled major area of the world. (See table bottom of page.)

Next to its accelerated growth, the most dramatic change now happening to the world's population is its rapid urbanization. Throughout history and until fairly recently, most of the people have resided in rural places. Now already in some regions, and soon in most others, the majority of the population will be urban.

The trend seems irreversible at this time, and profound changes in modes of living, thinking and feeling are associated with it. One may be tempted to foresee a future world that will be totally urban. Nevertheless even this phenomenon can reach an eventual limit. Perhaps in the more distant future the settlement pattern will crystallize in new forms for which our present concepts furnish no meaningful description.

Little more than one-fifth of the world's population was urban in 1925. The urban proportion in the world total now approaches two-fifths, may exceed one-half by the century's end, and can rise to two-thirds about fifty years from now. In North America, Europe, the Soviet Union and Latin America, it will then be the overwhelming majority.

It is of interest to note at what time the urban population has become, or is likely to become, the majority in each region. The urbanization level surpassed fifty per cent since about 1920 in North America and Oceania, about 1930 in Europe, about 1960 in the Soviet Union, and about 1965 in Latin America. It is projected to reach fifty per cent about 1995 in East Asia, about 2015 in Africa and about 2025 in South Asia.

The estimated amounts of urban population show that the number of urban dwellers in the world has grown almost fourfold from 1925 to 1975 (405 million to 1,585 million) and that it may again grow almost fourfold from 1975 to 2025 (to 6,029 million). In the fifty years which have passed, the urban population nearly doubled in Europe, grew threefold in North America and Oceania, fivefold in the Soviet Union, sixfold in East Asia, nearly sevenfold in South Asia, and about eightfold in Latin America and Africa.

In the fifty years to follow, the urban population of Europe may grow by four-fifths, those of North America, the Soviet Union and Oceania may more than double, in East Asia the urban population may grow fourfold, in Latin America almost fivefold, in South Asia almost sixfold, and in Africa eightfold. The figures are controlled in part by anticipated growth in total population and in part also by the eventual exhaustion of the rural population whence migrants originate and where new towns come into existence.

In 1925 two-fifths of the world's urban population was still to be found in Europe. Though it has doubled, at the present time Europe's urban population is approximately equalled by those of East Asia and South Asia. In the future, perhaps one-half of the world's urban population will be shared by East and South Asia. Latin America and Africa may then have larger urban populations than Europe despite the continued growth of the latter. (See table top opposite page.)

In many regions overall population gains are so massive that, despite an enormous growth in the size and number of cities, the rural population keeps on augmenting. This is no longer the case in North America, Europe and the Soviet Union where the rural population has passed its peak, is already decreasing, and may decrease more decidedly in the decades to come. (See table bottom opposite page.)

The long-range projections make it appear likely that in other parts of the world the rural population will also, sooner or later, reach a maximum and then grow no further. This may occur by 1985 in East Asia, by the year 2010 in Latin America, by 2020 in Oceania, and perhaps as late as 2030 in Africa.

The maxima of rural population either attained in the past, or to be reached

Percentage of world population in eight major areas, 1925-2075

Area	1925	1950	1975	2000	2025	2050	2075
World total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Northern tier	61.2	56.1	49.4	40.8	34.7	31.0	29.3
North America	6.4	6.7	6.0	5.1	4.4	3.9	3.7
Europe	17.3	15.8	11.9	8.7	7.0	6.1	5.8
Soviet Union	8.6	7.2	6.4	5.1	4.2	3.8	3.7
East Asia	29.1	26.4	25.1	21.9	19.1	17.2	16.2
Southern tier	38.8	43.9	50.6	59.2	65.3	69.0	70.7
Latin America	5.0	6.6	8.1	10.0	11.7	12.6	13.0
Africa	7.8	8.7	9.8	12.6	16.1	17.2	16.4
South Asia	26.4	28.1	32.2	36.1	36.0	38.0	38.8
Oceania	0.6	0.5	0.5	0.5	0.5	0.5	0.5

Inhabitants per square kilometre in the world and eight major areas, 1925-2075

Area	surface in thousands of sq. km.	1925	1950	1975	2000	2025	2050	2075
World total	139,450	14	16	29	47	66	81	87
Northern tier	80,574	20	23	33	44	53	59	59
North America	21,515	6	8	11	15	19	20	21
Europe	4,931	69	79	97	116	131	139	142
Soviet Union	22,402	7	8	11	15	17	19	20
East Asia	11,726	49	56	80	121	150	164	168
Southern tier	58,876	10	14	28	49	76	98	109
Latin America	20,535	5	8	18	32	52	69	77
Africa	30,227	5	7	13	27	46	64	74
South Asia	19,867	25	36	66	120	179	223	240
Oceania	8,567	1	2	3	4	5	6	7

Urban population in the world and eight major areas, 1925-2025 (millions)

Area	1925	1950	1975	2000	2025
World total	405	754	1,585	3,338	6,025
North America	68	106	186	285	374
Europe	162	207	314	444	567
Soviet Union	30	71	155	252	330
East Asia	58	105	322	771	1,226
Latin America	25	68	198	494	823
Africa	12	30	98	328	765
South Asia	45	111	260	790	1,785
Oceania	5	8	15	25	35

in the future, however, are of quite diverse orders of magnitude. The past peak populations in the rural localities of North America, Europe and the Soviet Union were of the order of 60, 180 and 145 million, respectively. In Latin America the maximum may be reached with 172 million, in Africa with 594 million, in East Asia with 689 million, and in South Asia with 1,732 million. The last-mentioned figure is some 700 million larger than the present one and it is difficult to foresee how such an enlarged rural population will be productively employed.

The worried reader may seek solace from the fact that the projections merely result from assumptions made rather arbitrarily. The future is likely to prove that none of the assumptions has been quite right. In fact, the projections discussed so far represent only a "medium" variant which, in our present view, is perhaps the most probable. But the "high" and "low" variants calculated as its companions are still considered to lie within a range which cannot be ruled out as improbable. Outside this scheme of three plausible variants some other alternatives have also been computed.

One alternative, namely, the maintenance of fertility levels recently recorded in each region into an indefinite future, must be ruled out as quite impossible. If mortality diminishes as already assumed, but fertility remains unchanged, the total world population would reach 7,843 million in 2000, and it would exceed 17,000 million in 2025, 40,000 million in 2050 and 100,000 million in 2075. Even then it would continue to grow with breath taking speed.

Science-fiction may enable us to envisage some future planet, remote either in time or space, supporting 100,000 million human beings in health, assuming that in the interim there have been carried into effect truly astounding transformations in technology and social organization. Perhaps genetic mutations would be necessary for adaptation to such a totally altered environment. The year 2075 is decidedly too early for such cosmic achievement. Constant fertility throughout the next hundred years would certainly provoke disaster.

But it is equally certain that high fertility rates cannot be at once reduced to less than half their present levels. A projection has, in fact, been calculated where mortality will decline as already assumed, but where fertility is suddenly cut down to net replacement level beginning with the year 1970. In this projection, owing to the time needed for the adjustment of age structure, the world's population would still rise to 5,796 million by the year 2075, less than one-half of the over 12,000 million figure foreseen in the "medium" variant.

Coming closer to reality, the crux of the problem is how to envisage the timing and speed of those fertility reductions which must inevitably come about. There is much pertinent knowledge derived from past trends in at least some parts of the world, and from studies of the circumstances under whose influence such downward trends have been set into motion.

But, as already said, there exist two types of factors, some of which can precipitate fertility decline while others retard it. The net result, in terms of actual fertility decrease, depends on how soon, and how strongly the first set of factors will prevail over the second. The reader will appreciate that our area of uncertainty remains wide.

We expect that government programmes aiming in that direction will achieve at least some measure of success. We are also aware of other well established trends, such as more widespread education, more frequent survival of children to adolescence, increased circulation of mass communication media, intensifying urbanization, and so forth, and these will also play their part.

It is still useful to ponder the possible consequences of a more dismal assumption concerning mortality. In fact, during the 1960s progress in the postponement of death has been less rapid in most parts of the world than it had been during the 1950s. One interesting, though admittedly very pessimistic (and quite improbable) assumption to make is that after 1970 mortality decline has been permanently arrested.

A detailed projection of this type has not yet been calculated, but it can be reasonably expected that in the presently more developed regions constant mortality at the recent level would not take away much from projected population growth because mortality is already quite low. In some of the less developed regions, population growth will be more significantly slowed down if, which we do not believe, health levels should remain as they now are.

Finally, it remains justifiable to give thought to the possibility of severe reversals in the affairs of man, provoking catastrophic events which exact a huge loss of lives. There is no denying that great tragedy can overtake us at any moment. But no basis can be found for estimating either its timing or its extent.

It is emphasized here that all the international efforts directed at the preservation of peace, the assertion of human rights, the stimulation of economic and social progress, the protection of the environment, and relief measures in cases of local disaster, are aimed precisely at the avoidance of any extensive reversal. As a guide to responsible action, therefore, we can only take into account such projections In which the contemplation of admittedly possible, cataclysmic breakdowns plays no part. ■

Rural population in the world and eight major areas, 1925-2025 (millions)

Area	1925	1950	1975	2000	2025
World total	1,555	1,781	2,445	3,115	3,172
North America	57	60	57	45	31
Europe	177	195	185	134	79
Soviet Union	138	109	101	78	52
East Asia	513	552	689	650	530
Latin America	73	95	131	158	149
Africa	144	187	297	482	594
South Asia	452	587	889	1,559	1,727
Oceania	4	5	7	10	11

High fertility and economic growth *(Continued from page 29)*

people. Removing the lower half of the income distribution in any country will raise the average income of the country as a whole by a purely arithmetic process. And logically one should then carry this to the point at which one leaves only one man—the richest man to start with. Of course this is absurd, but this is the kind of absurdity that the average-income quality-of-life criterion leads to. Such absurdities should make the criterion suspect.

(2) Another implication of an average-income criterion is that the birth rate should be driven down to ridiculously low levels, and perhaps to zero births—the particular level depending upon the weight one gives to the future relative to the present. For example, if the future is discounted at perhaps 10 per cent per year, the present value of per-person income into the infinite future would be maximized if we stop having babies completely. This is because it will be a long time before the babies begin to produce anything, though they will be consuming immediately.

Hence a baby born today lowers the income of everyone else, on the average. Having no babies at all next year would be good for per-capita income next year. But no one wants to go so far with this implication of an average-income criterion. Hence this criterion should not be taken as a basic guide to action. ■

Julian L. Simon

POPULATION POLICIES *(Continued from page 21)*

them. "This position implies a policy oriented *de facto* towards a further decrease in the rate of population growth."

Canada has not yet considered the official formulation of an explicit population policy.

Latin America

The picture which can be deduced from the somewhat limited number of responses from Latin American countries may not fully represent the actual situation in the whole region.

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High fertility and economic growth *(Continued from page 29)*

people. Removing the lower half of the income distribution in any country will raise the average income of the country as a whole by a purely arithmetic process. And logically one should then carry this to the point at which one leaves only one man—the richest man to start with. Of course this is absurd, but this is the kind of absurdity that the average-income quality-of-life criterion leads to. Such absurdities should make the criterion suspect.

(2) Another implication of an average-income criterion is that the birth rate should be driven down to ridiculously low levels, and perhaps to zero births—the particular level depending upon the weight one gives to the future relative to the present. For example, if the future is discounted at perhaps 10 per cent per year, the present value of per-person income into the infinite future would be maximized if we stop having babies completely. This is because it will be a long time before the babies begin to produce anything, though they will be consuming immediately.

Hence a baby born today lowers the income of everyone else, on the average. Having no babies at all next year would be good for per-capita income next year. But no one wants to go so far with this implication of an average-income criterion. Hence this criterion should not be taken as a basic guide to action. ■

Julian L. Simon

POPULATION POLICIES *(Continued from page 21)*

them. "This position implies a policy oriented *de facto* towards a further decrease in the rate of population growth."

Canada has not yet considered the official formulation of an explicit population policy.

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Letters to the Editor

' PORTUGUESE ' AFRICA

Sir,

Bravo for your issue, " 'Portuguese' Africa: the Struggle for Independence" (November 1973). It raises the real problems of the modern world.

Mme Lefranc
Nice, France

Sir,

Ginette Fontaine-Eboué says that Unesco would like to see peace restored in Portuguese Africa (your November 1973 issue), and I have no doubt that the inhabitants would as well. The only people who do not appear to want peace are the terrorists who illegally enter the territory of a member of the U.N. in order to cause as much terror as possible, e.g. by laying mines, kidnappings, etc. If they withdrew, the Portuguese would have no-one to fight (they do not want anyone to fight) and peace would be restored. Yet the U.N., the World Council of Churches and other supposedly humanitarian organizations consistently give aid to these terrorists!

E.W. Boaden
Reading, U.K.

Sir,

Your November 1973 issue was most impressive. The Portuguese colonialists trample on human dignity and instil in the African people a sense of inferiority so as to bring them to submission and servitude. But this will never happen! World public opinion sides with the peoples of Africa fighting for their freedom.

N. Mirsanova
Teachers' Training College
Komsomolsk-on-Amur, U.S.S.R.

Sir,

Your issue on "Portuguese" Africa is very well done. We would like 150 copies for use in educational and fund raising programmes for the liberation movements.

Dennis G. Adair
Education Director
United Nations Association
Toronto, Canada

Sir,

I believed the information published by the "Unesco Courier" to be impartial and honest, objective and true. Your November 1973 issue, however, was a great disappointment to me. You published articles and opinions about my country's problems and politics which are totally one-sided and sometimes untrue. I respect your political ideas and freedom of mind, but your unobjective and partial treatment of the subject shocked me. The items which make up your issue were collected only from the so-called "liberated" territories. What about the other territories? What about the positive action of Portuguese people in the African provinces?

Mawa João Ataide
Lisbon, Portugal

Sir,

I read with considerable interest the excellent articles in your November 1973 issue. The International Student Movement for the United Nations (ISMUN) is closely following the progress of this struggle, not least in the newly-proclaimed republic of Guinea-Bissau.

Jon Alexander
Secretary-General
ISMUN, Geneva, Switzerland

Sir,

We are now using your special issue on "Portuguese" Africa in our activities. It is a very powerful "weapon".

T. Ogawa
Japanese Anti-Apartheid
Committee, Tokyo

Sir,

I believe strongly in decolonization and the right to self-determination, but I know little about the lives and the struggles of the peoples concerned. The "Unesco Courier" has now bridged the lamentable omissions of the press in general.

Celso E. Ferreiro
Madrid, Spain

' UNSCIENTIFIC AND UNJUST '

The " Parents' and Teachers' Association of Lyon " recently organized a discussion on racism, in which European, African and Asian teachers and students took part. In a final statement, the Association urged that a great effort be made in all schools and in all countries to show that " the concept of racial superiority is unscientific ", and that such a concept is " unjust and revolting ".

The Association called for " the right to education and to participation in cultural life " to be extended to all immigrant workers and their families, " for whom special classes should be provided where necessary ".

René Nodet
Lycée Jean Perrin
Lyon, France

MERRYMAKING IN NEWFOUNDLAND

Sir,

Your readers may be interested to hear about this year's celebrations marking the 25th anniversary of the Confederation of Newfoundland with Canada *.

The celebrations began on March 31 at midnight with bonfires and songfests all over the Province and will continue throughout the spring and summer. All Newfoundlanders are being encouraged to join in as much as they can.

There are three travelling shows : " Where It's At ", a slide and film show on a six-image multiscreen, shows Newfoundlanders at work and play ; " Celebration Time ", is a combination of live and filmed entertainment, and " Newfoundland Pageant " is a mixture of old and new. The company will travel with their own stage and so can set up virtually anywhere in the various communities they visit. Their production will trace Newfoundland's people back to the visiting Vikings and Cabot's landing in 1497.

In September, a Fisheries Exhibition in St. John's will provide events and competitions for commercial fishermen as well as the weekend angler, and demonstrations of fish filleting, packing, freezing and canning.

Even blueberry pickers will have a chance to demonstrate their skill during the Work Skills Festival in the early part of September, as will farmers and sheep raisers and turnip growers.

Jane E. Cumings
Toronto, Canada

** Newfoundland became the 10th province of Canada on March 31, 1949. The Province comprises the Atlantic island of Newfoundland and the coast of Labrador, and has a population of just over half a million—Editor.*

LITTLE-KNOWN CELTS

Sir,

Your December issue (" Pakistan, 5,000 Years of Art & Culture ") was devoted to what is certainly an interesting civilization, but one which appears to have very few links with our own. The Celtic civilization, for instance, is no better known but it is very much closer to us.

Why not devote an issue to the Celtic civilization, which among other things gave us soap and the barrel and whose people founded an empire in Europe before that of the Romans.

Laurent David
Bourg-Achard, France

' DOLDRUMS ' AND ' HORSE LATITUDES '

Sir,

Your special issue on world meteorology (August-September 1973) was useful and interesting. May I however, point out a minor error in " A Short Guide to Weather-Speak " (on page 41). You are right in saying that the area of equatorial calms (between the two belts of trade winds) is known as the "doldrums", but it is wrong to say that English mariners in the days of sail called it the " horse latitudes ".

The name " horse latitudes " is properly applied to the areas of tropical calms in the neighbourhood of the Tropics of Cancer and Capricorn (respectively 30-33 degrees north and south of the Equator), and particularly to the part of the northern belt over Atlantic.

Otherwise, as a specialist in meteorology, may I say that your issue is a fine achievement.

Coriolano Luiz Tonan
Rio de Janeiro, Brazil

Imp. GEORGES LANG, PARIS. — Dépôt légal C 1 — Avril 1974 — IMPRIMÉ EN FRANCE (Printed in France)

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